Raymond D. Allison
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AN ECONOMIC HISTORY OF THE UNITED STATES

ERNEST LUDLOW BOGART

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AN ECONOMIC HISTORY

OF

THE UNITED STATES

BY

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MADE IN THE UNITED STATES

To
S. M. B.

PREFACE

The rapid march of economic progress, the normal industrial changes of a decade, and the taking of a new census seemed to make a further revision of this work desirable. But more than any of these factors, the revolutionary changes which accompanied and followed the World War made necessary the addition of such new material. Advantage has been taken of the opportunity thus afforded to make a thorough revision of the whole book. It has accordingly been entirely rewritten; the introductory chapter in the old editions has been omitted; a few others have been combined; while new chapters on the Mining Industries have been added, together with a new Part covering the events of the war period and bringing the book down to date.

In revising the work the author has endeavored to take advantage of various suggestions which have been made by teachers who have made class use of it. Greater emphasis has been placed upon the relation of cause and effect in economic development; it is meant to be more than a mere narrative of events. Above all things the difficult aim of making the subject teachable to young students has been kept in view.

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ECONOMIC HISTORY OF THE UNITED STATES

PART I

COLONIAL DEVELOPMENT

CHAPTER I

EXPLORATION AND COLONIZATION

1. The conditions of economic development. — The main conditions of the industrial growth of any country consist of two factors — the character of the people and the natural resources. Only when the gifts of nature are bountiful and are intelligently utilized by man can a nation attain to the highest degree of strength and prosperity. The presence of rich natural resources alone has not been sufficient to secure the development of a weak, ease-loving race like the Latin-American, nor has mere growth in numbers, as in China or India, been enough to make the nation wealthy and strong. On the other hand, even a bold, vigorous race like the Scandinavian has not been able to make great advance in an inhospitable country like Iceland. In the territory now included in the United States, a virile, energetic people found extraordinary opportunities for industrial development, and devoted themselves to the exploitation of the natural resources with wonderful success. The keynote of the national history of the United States is to be found in this work of winning a continent from nature and subduing it to the uses of man. A truly gigantic task, it has absorbed the main energies of the American people from the beginning, and has been approached

in significance only by the struggle to preserve the Union. Inevitably it has left its impress on the character and ambitions of the people. For this reason, says Woodrow Wilson, "the history of the country and the ambitions of its people have been deemed both sordid and mean, inspired by nothing better than a desire for the gross comforts of material abundance; and it has been pronounced grotesque that mere bigness and wealth should be put forward as the most prominent grounds for the boast of greatness. The obvious fact is that for the creation of the nation the conquest of her proper territory from nature was first necessary; and this task, which is hardly yet completed, has been idealized in the popular mind. A bold race has derived inspiration from the size, the difficulty, the danger of the task. Expansion has meant nationalization; nationalization has meant strength and elevation of view."

In the following pages is pictured the economic development of the American people. Properly to understand the beginnings of this development it is necessary to sketch briefly the European background at the time of the first colonization of this continent.

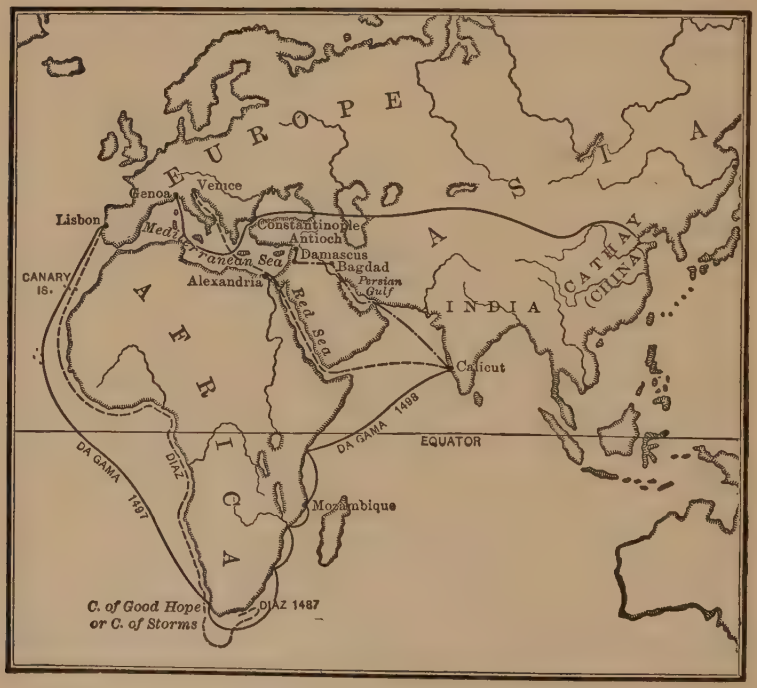
2. The Renaissance. — The fifteenth century marks the height of the Renaissance, the awakening of men's minds from the slumber of the Middle Ages. Compact monarchies were growing up on the ruins of feudalism, and were gaining strength from new alliances with industrial towns. Manufactures became increasingly important; navigation was stimulated by the discovery of the mariner's compass. The invention of gunpowder was the final blow to the military power of the feudal lords, while the invention of printing spread the new learning among the common people. Peaceful activities became increasingly prevalent, whilst the ascetic ideal of the Middle Ages was shattered, thus opening the way for commercial expansion by raising the general standard of living.

Medieval Europe was dependent for her luxuries upon the Orient. Pepper, cinnamon, ginger, and other edible spices constituted one of the chief luxuries in an age when coarse

food, limited in variety and unskillfully cooked, made the ordinary diet extremely monotonous. Drinks as well as food were highly spiced with condiments. Precious stones and fabrics for personal adornment or the ornamentation of shrines and religious vestments, were in equally great demand, while dyes and perfumes, drugs and fragrant woods all came from the same remote source. On the other hand, the export of European goods, metals, woolens, and manufactured articles, formed a trade of equal importance to the East.

3. Geographical discoveries. — Down to the fifteenth century trade between the East and West had been carried on over three routes. One of these lay across the Arabian and Red seas and so into the Mediterranean. Another followed the coast along the Arabian Sea and the Persian Gulf and then up either the Tigris or Euphrates river as far as navigation permitted, with a final land carry to some Mediterranean port. The third led from distant China across the desert and mountains to the Caspian and Black seas. Once arrived at a Mediterranean port, these Oriental goods were distributed throughout Europe by Italians, Spanish, or French merchants. Beginning about 1350, however, the rapid rise to power of the Ottoman Turks and the spread of their conquests over all Asia Minor closed one of these routes after another, which was completed with the fall of Constantinople in 1453. It now became necessary for Europe either to forego the profitable Eastern trade or to discover a new route to the Indies. But the growing demand for Oriental luxuries had made the trade too valuable to lose. Then it was that the exploring movement of European nations began, in the eager search for a new route to the Indies. Southward along the coast of Africa the daring Portuguese pushed their voyages in the hope of rounding that continent, a feat which was successfully accomplished in 1486 by Bartholomew Diaz, and repeated eleven years later by Vasco da Gama. Northward along the coast of Europe other voyagers sought in vain for a northern route. And finally, relying upon the sphericity of

the earth, Columbus sailed due west across the Atlantic in search of a shorter route. After America was discovered, and it was found that India lay still farther to the west, Magellan pushed on around the southern extremity of this new barrier and finally circumnavigated the globe in 1522.



TRADE ROUTES TO THE EAST

The closing of these routes through the conquests of the Turks deprived Europe of a very profitable trade. In exchange for woolen cloth, lead, wine, and glassware, Europeans had brought back from the East spices, pepper, cotton cloth, silks, ivory, precious stones, and other valuable articles. The importance of the voyages of Diaz and Da Gama in re-opening the way to India is clearly shown.

4. Fifteenth century trade. — At the beginning of the fifteenth century most of the commerce was in the hands of individual merchants who depended upon municipal encour-

agement and support in their intercourse with foreigners. They usually occupied a building or a quarter in the foreign city with which they carried on their trade and from which they obtained special trading privileges. There were five principal groups of such trading cities, whose merchants probably carried on nine tenths of the European commerce of that period, and of which the best known is the Hanseatic League. With the growth of centralized states the political power of the trading cities became relatively weaker, and they were less able to extend protection to their citizens abroad. Opposition too arose to the privileges of foreign merchants in the states whose citizens wished the profits for themselves. New national policies developed which were opposed to the narrower municipal interests of the trading cities.

Moreover, the discovery of new routes to India and the discovery of America opened up new lines of commerce and caused a great development of trade, which in turn caused a shifting of maritime power. The center of gravity was moved from the Mediterranean to the Atlantic seaboard. The highway of commerce had been the Mediterranean, and such ports as Venice, Genoa, and Marseilles, or such inland trading centers as Augsburg and Cologne, had been the seats of trade. But when the Atlantic became the highway, the countries that bordered upon it — Portugal, Spain, Holland, France, and England — were given new opportunities. It soon became clear that the articles which the new world produced were immensely valuable and they began to form the basis of a new and lucrative trade with Europe. Fish, whale oil and bone, furs, naval stores and timber, and later sugar, tobacco, dyewoods, and other products all were in great demand. Distant trading thus became the chief commercial phenomenon of the sixteenth century, and the new world became the scene of daring exploring and colonizing expeditions by each of the western European nations in turn, each trying to obtain and hold the prize of new territory and new wealth.

5. Motives for exploration and colonization: Economic. — In view of the general movement towards exploration and settlement, not merely of America, but of all the newly discovered territories, it is worth while to ask ourselves what the motives were which produced such widespread, almost concerted, action on the part of the most important nations. These were different in the case of different nations, some emphasizing motives which were subordinate in the case of others, but in the main they were economic — greed for gold, desire for territory, to obtain an outlet for surplus population or a market for goods. Partly, too, they were political and religious, and at these we may briefly glance after enumerating the others.

The main impulse in the work of colonization was economic. The new world offered an opportunity for large gains and for the profitable investment of capital. The desire for the precious metals was probably the most universal and powerful motive to the exploration and settlement of America. The first quest of the earlier expeditions was always gold, and the search for this elusive commodity led to the exploration of much of the two continents. Spain won the chief prize in this respect, and her success both dazzled other nations and stimulated them to similar effort. The Spanish colonies were founded with the purpose of exploiting the mines of gold and silver. While other economic and commercial motives were of greater importance in the English settlements, yet in the earlier expeditions this was predominant with them also.

The most potent reason for the early explorations, together with the probable presence of gold, was the search for a shorter route to India. It was this that led Columbus to the west across the Atlantic, and that motive still held in the Spanish mind until Magellan sailed through the straits which bear his name. It was this feat of Magellan's and the earlier rounding of the Cape of Good Hope by the Portuguese that directed English energies into this channel for so many years. According to the then prevailing principles of international law the

CLAIMS OF NATIONS
1763-75
SHOWING RESULTS OF
French and Indian War
PACIFIC OCEAN
ATLANTIC OCEAN
ARCTIC CIRCLE
Hudson Bay
Mississippi R.
BRITISH
SPANISH
GULF OF MEXICO
TROPIC OF CANCER
BAHAMA IS.
HAITI Fr.
CUBA
JAMAICA
SANTO DOMINGO
PORTO RICO
CARIBBEAN SEA
SOUTH AMERICA
EQUATOR
MIQUELON Fr.
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title to the ocean routes to India belonged to Spain and Portugal. Hence the English sent expedition after expedition to the northeast of North America in search of this elusive passage. Such a route, if discovered, would not only be English; it would have the additional advantage, by passing through a cold climate, of opening up a market for England's great staple, cloth. The pursuit of this chimera of a Northwest Passage continued for a hundred years — Frobisher (1576) sailed in search of it; Davis (1586), Hudson (1607 and 1610), Baffin (1615), Fox, James (1631), and others, went on the same fruitless mission.

There was also a quest for new markets for the growing manufactures. Hakluyt tells us this as early as 1553: "At what time our merchants perceived the commodities and goods of England to be in small request with the countries and people about us and near to us, and that those merchandises which strangers did earnestly desire were now neglected and the price thereof abated, though by us carried to their own ports, and all foreign merchandises of great account, certain grave citizens of London began to think how this mischief might be remedied. Neither was a remedy wanting — for as the wealth of the Spaniards and Portuguese, by the discovery and search of new trades and countries, was marvelously increased; supposing the same to be a means for them to obtain the like, they thereupon resolved upon a new and strange navigation."

But not only was a market desired for English exports; a source of supply of the raw materials and other articles which the English people were at that time compelled to purchase from foreign nations was sought. England imported her naval stores from Russia and Poland; copper from Sweden; wines, salt, and canvas from France; silks and velvets from Italy; spices from the Indies. All these, it was thought, could be obtained from the new world, and all the early reports give glowing accounts of the natural productiveness of the country. At the same time, this vast interchange of goods

between England and the new world would stimulate the growth of the English merchant marine, and train up a sturdy set of English seamen.

The effect of the fisheries in directing whole fleets of English, French, and Dutch fishing vessels to the Newfoundland Banks and down the New England coast was felt before the true era of colonization began. Communication between Europe and North America had been constant for a century before the settlement of Jamestown, and a thorough exploration of the coast had been made. After the settlement of the continent began, the fur trade was equally important in stimulating exploration of the interior, and in providing the material for a lucrative commerce.

A final reason which found expression in contemporary writings was that the new settlements would furnish an outlet for the surplus population of England. Throughout the sixteenth and seventeenth centuries there were many complaints of the redundancy of the population. The cessation of the Elizabethan wars left many adventurers without an occupation, and the substitution of sheep pastures for farms had thrown multitudes out of work. All these, it was hoped, would find employment in the new colonies.

6. Political and religious motives. — Political aims were present in the case of the English in all schemes for colonizing North America. The settlement of Virginia was regarded as a check to the northward spread of Spanish settlements, and was considered a proper defiance of the Spanish claim to the whole continent under the famous bull of Pope Alexander VI, which divided the new world between Spain and Portugal. Rivalry with Spain was a note that ran through all the work of exploration and settlement, not merely of England, but of Holland and France also. Political disaffection at home, as during the period of the " great migration " from England, also drove many settlers across the Atlantic in search of liberty and of freedom from oppressive laws.

Closely connected with these were the religious motives.

The antagonism of Protestant England to Catholic Spain was largely religious. Captain John Smith declared the first object of the Virginia Plantation was "to preach and baptize into the Christian Religion, and by the propagation of the Gospell, to recover out of the arms of the Devill, a number of poore and miserable soules wrapt up unto death in almost invincible ignorance." The religious impulse was also strongly at work in New England. The Pilgrim Fathers sought to establish a colony in which they could worship after their own fashion, and in which church membership was made the condition of citizenship. Other English settlements were made to permit the free exercise of different religious convictions: Maryland was a Roman Catholic settlement; Rhode Island was founded by Roger Williams to secure liberty of conscience; the Quaker colony of Pennsylvania was essentially religious.

Spanish and French efforts at colonization were also conceived largely in a missionary spirit. The missionaries of these nations preceded even the traders and settlers, and opened the way for the spread of colonies, as in the west and southwest of North America.

7. Spanish methods of colonization. — To carry on this work of distant exploration, colonization and trading, commerce had to be organized differently from what it had been before. Individual merchants had neither the capital nor the power to carry it on. It needed the political backing of a strong national government, more capital than could be furnished by an individual, and was thought to require a monopoly. These difficulties were met in the case of Spain and Portugal by the establishment of government monopolies. The colonies were regarded simply as sources of wealth to the parent state, and their products were monopolized by a most jealous colonial policy. Industries were forbidden to the colonies which would in any way interfere with those of the mother country. Thus, at one time or another, the culture of saffron, hemp, tobacco, olives, and vineyards was prohibited under severe penalties. The energies of the colonists were all directed

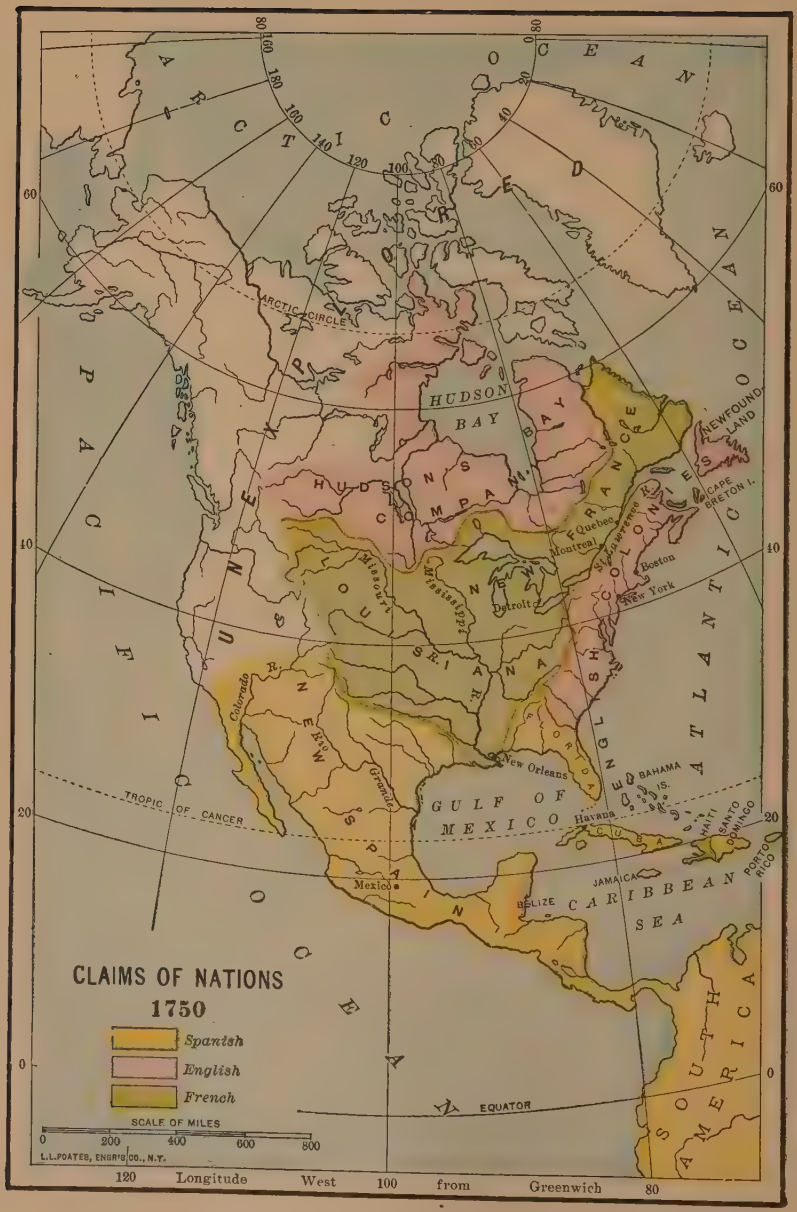
into the channel in which they would not compete with home industry and would yield the largest immediate returns, namely, mining; the exports of the colonies to Spain consisted chiefly of gold and silver. Commerce with the colonies was absolutely under the control of the crown and was carried on by privileged persons, the intercourse of foreign nations with the colonies being forbidden. Not only the settlement, but even the visits of foreigners were prohibited. The carrying trade was confined to Spanish vessels, and these were confined to a single port until 1764. Under such a selfish policy the interests of the colonies were completely sacrificed to those of the mother country, and their economic progress was effectually prevented.

Portugal never established any colonies in North America, and those of Spain were confined for the most part to the West Indies, Central and South America, owing to the directness of the route thither from Spain and the presence there of gold. Fortunately, perhaps, for the United States the settlements in Florida and Louisiana were never developed. All of Spain's colonies within the United States have since come into possession of this country, and today Spain has not a single colony on either of the American continents.

8. Chartered companies. — In contrast with both the individual merchant of the fifteenth century and the government monopoly of Spain and Portugal, the other nations of Europe solved the problem of distant trading enterprises and of the colonization of new lands by establishing chartered companies for this purpose. Some fifty or sixty such companies are enumerated by Cheyney as having been chartered between 1554 and 1698 by the governments of England, France, Holland, Sweden, and Denmark. Of these the best known are the East India companies, which were established by every nation; but the ones which exerted the greatest influence on American colonization were the London and Plymouth companies, chartered by the English government in 1606. Such a chartered commercial company had long

existed in England in the form of the "Society of Merchants Adventurers," which had carried on trade in Holland and Flanders and parts of Germany. During the second half of the sixteenth century five or six new companies were chartered to carry on trade, under monopolistic grants, with Russia, Turkey, Morocco, Guinea, and the East Indies. When the movement to colonize America took form, therefore, it naturally followed the lines already marked out, and chartered companies were organized to do the work which the government was unwilling or unable to undertake. It must be remembered that governments were not yet centralized and were not strong enough to perform many functions which today they carry on as a matter of course, consequently they handed over to private or semi-private companies duties which were really public, and often granted such companies special privileges and even sovereign rights.

The London Company obtained a grant of land stretching about four hundred miles along the coast, between the thirty-fourth and thirty-eighth parallels, and "up into the land from sea to sea westward and northward." The Plymouth Company was granted a similar territory in New England between the forty-first and forty-fifth parallels. All the region between these two companies was open to colonization by them or other persons. These chartered companies were organized for profit, and treated the distant colonies which they established as "plantations" from which they expected pecuniary returns. They were, moreover, managed by officers who remained in England, and the colonists were simply servants who were in the employ of the company. The grants from the government gave to the companies full title to the land in their grants, fairly complete powers of government and administration, and a practical monopoly of trade between the plantations and the mother country. Capital to finance the undertaking and send supplies to the colonists were obtained from the sale of stock, on which dividends were expected. The supplies sent with the colonists were treated


ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
ARCTIC CIRCLE
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HUDSONS BAY COMPANY
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Quebec
Montreal
St. Lawrence R.
ENGLISH COLONIES
Boston
New York
Detroit
Missouri R.
Mississippi R.
LOUISIANA
Colorado R.
NEW SPAIN
Rio Grande
New Orleans
FLORIDA
BAHAMA IS.
TROPIC OF CANCER
GULF OF MEXICO
Havana
CUBA
HAITI
SANTO DOMINGO
PORTO RICO
JAMAICA
Mexico
BELIZE
CARIBBEAN SEA
SOUTH AMERICA
EQUATOR
CLAIMS OF NATIONS
1750
Spanish
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French
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as a common store, and the products of their work were turned into a common stock. Though at first quick returns in the shape of gold and silver were sought, that soon became of subordinate interest, and agriculture, fishing, and trade were given chief attention.

9. Early colonies. — In 1607, at Jamestown, the first settlement was established, the germ of the United States of today. The colonists, who were ill designed for such a task as that of settling a new country, and who were quickly disillusionized as to its nature, were held together only by the firmness of their leader, John Smith, who insisted that "nothing was to be expected but by labour." They experienced severe hardships, some born of their own inefficiency and some of the rapacity or incompetency of their governors, and twice nearly abandoned the colony. A great improvement was introduced by Sir Thomas Dale, in other respects the hardest of their taskmasters, who assigned to each man a piece of garden land for his own use. It was estimated in 1614 that a man working for himself would produce ten times as much as when the labor was for the common stock. The system of joint ownership of land was given up about 1622 and was followed in time by the disappearance of the system of common trade. The discouragement of the stockholders and troubles between the company and the government led to the withdrawal of the charter in 1624, and the end of the experiment in Virginia of establishing a plantation for profit.

The Plymouth Company made an unsuccessful, though costly, attempt to plant a colony on the Kennebec River in 1606, but the settlers, who were ill adapted to the task, returned to England after a year's suffering. When the Pilgrims settled in Plymouth in 1620, the venture was financed by a private association of London merchants, who were careful to provide for a money return. The same system of a community of goods and common trading that had prevailed in Jamestown was followed here, and with equally unsatis-

factory results. The scheme of working the land in common was abandoned after fours years' trial, and every man was given an acre of land where he might grow his own corn. Three years later the demands of the subscribers for immediate returns had proved so annoying that the system of common trade was also discontinued, and the colonists agreed to buy out the stockholders for £1800, which was paid in yearly installments of £200. In spite of suffering at first, the colonists soon established themselves in their new home. They were a brave, industrious, religious, and liberty-loving people, who had left England rather than conform to an established church, and were both willing and able to endure the hardships of a pioneer life. Attracted by the slender success of the Plymouth experiment, fishing stations were established on the Maine coast, and then more permanent colonies in rapid succession: Massachusetts Bay, Maryland, Connecticut, Rhode Island, New York, New Jersey, the Carolinas, and Pennsylvania.

The two colonies thus far described were financed and managed by stockholders resident in London, and were established for profit. In the case of the Massachusetts Bay Colony a different plan was followed: the stockholders themselves emigrated to America and took their charter with them. The stockholders' meetings were the legislative assemblies, and only those could vote who owned stock; later, as the population grew, the representative system was introduced. Since they were not under obligation to obey orders or to pay dividends to a distant body of stockholders in England, the colony from the outset enjoyed self-government and prospered in spite of an inhospitable climate and soil.

10. Proprietary colonies. — The early method of colonization in America by means of joint-stock companies soon gave way to a system of grants to a single proprietor. A single individual could manage affairs more easily than a corporation, and seems to have been preferred by the home government as an agent for colonizing purposes. Maryland, Maine,

New York, Carolina, and Pennsylvania were all founded by proprietors to whom the king made grants of land, generally as a reward for political or personal services. The proprietor was usually a man of large means who undertook the planting of a colony, as one might establish a distant estate or plantation. They were generally feudal and aristocratic in type, though this was modified and democratized by the environment and social forces of a new country. The proprietor often lived part of the time in England and part of the time in the territory which had been granted him. As an illustration of the method by which he secured colonists to settle his estate, the conditions of plantation announced by Lord Baltimore in 1633 may be cited. Each free planter was to pay the cost of his outfit and transportation, which amounted to about £20. To every married man and to his family, the proprietor promised one hundred acres of land each for himself and wife, one hundred acres for each adult servant, and fifty acres for each child under sixteen years of age. In 1642 the amount of land promised to each adult settler was reduced to fifty acres, and after 1683 could be procured only by purchase, part in tobacco and part in specie. In return the proprietor received his revenue from the colonies in the form of quit-rents, which were annual sums paid by the colonists in lieu of all services, and of receipts from mines and customs duties. Quit-rents were the most characteristic form of revenue and appeared in all the proprietary provinces. In Maryland these were first fixed at twenty pounds of wheat for every hundred acres, but were later changed to 2*s.* for every hundred acres and finally to 4*s.* In all the provinces quit-rents were an object of dislike; they were often resisted and were continually falling into arrears.

The relations between colonists and proprietors were in other respects also subject to friction. By their very nature the government of the proprietary colonies was autocratic, and the self-government of the inhabitants was limited by the large executive powers of the proprietor. In practice, however, there

was wide diversity, and the more enlightened proprietors, like Baltimore or Penn, gave to the colonists local self-government. But even at their best the agreements between the settlers and the proprietors were felt as restraints in the free atmosphere of a new country; the dissatisfied tenants after a while refused to abide by them, and in some cases ousted the proprietors. Moreover, as the population grew and trade developed, the need of stricter governmental control of the colonies by England was felt, which was rendered difficult if not impossible by the proprietary form of government. The crown took over one after another of these colonies and administered them directly by means of royal governors appointed by the crown; a large degree of self-government was permitted the colonists by means of the local assemblies elected by the propertied classes among the settlers. By 1775 Connecticut and Rhode Island were the only charter colonies in North America, and the proprietary form of government had entirely disappeared; all the others were now royal provinces.

11. Colonization a business enterprise. — It is evident from what has been said that the business of founding a settlement in the New World was both difficult and expensive. To travel so far from home and to transport the necessary supplies and equipment called for a considerable initial investment. Since the country was undeveloped the colonists must take with them clothing, household utensils and furniture, farm implements and tools of all sorts, domestic animals, and even, in the early days, sufficient food to tide them over the initial period until they could raise their own crops. Once arrived at their destination they had to contend with difficulties such as possible conflicts with the Indians, the necessity of clearing the land and fitting it for cultivation, ignorance as to the products best adapted to the soil and climate, and the scarcity of labor and capital. Various devices were used to make good the lack of labor during the colonial period, and with considerable success, but the need of capital in

every form was always a pressing need and was never wholly met. It was soon discovered that as an investment the founding of a colony was unlikely to yield any money return to the promoters at home. The economic advantages were at best indirect and remote.

12. The mastery of the English. — During the eighteenth century the English colonies in America developed quite rapidly. Georgia was the only new colony added to those already formed, but the population in the older colonies continued to increase; by 1765, the English-American colonists numbered approximately one million six hundred thousand persons, white and black, and occupied a narrow strip of coast almost continuously from Georgia to Nova Scotia. The Ohio valley had already been successfully disputed with the French, and to the north England had secured possession of the Hudson Bay Territory, Newfoundland, and Nova Scotia. Thus the English race, the last in the field, had obtained possession of practically all the settled portion of North America. Their success must be attributed mainly to the character of the people who had essayed this difficult task of conquering and settling a new world. Hardly less important, however, in stimulating and developing this character were the institutions of the people, growing, as they were, more and more free and democratic.

Of the four important European nations which settled in the territory now included in the United States, the English nation was the only one which succeeded in maintaining a permanent foothold. The Spanish, the first on the scene and the last to retire therefrom, owed their failure to the despotic character of the government, their ruinous commercial policy, and their lack of permanent settlements. Holland lost her possessions on the Hudson River chiefly owing to her failure to encourage the growth of colonies of small land owners, to her purely commercial colonial policy, and also to the strategic importance to England of New Netherlands. Finally the French, who came into possession of the broad inland basin

CLAIMS OF NATIONS
1783
SCALE OF MILES
0 300 600 900 1200
L. L. POATES ENGR'G CO., N.Y.
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
CARIBBEAN SEA
GULF OF MEXICO
Hudson Bay
BRITISH POSSESSIONS
SPANISH POSSESSIONS
CLAIMED BY UNITED STATES
NEWFOUND LAND
MIQUELON Fr.
ST. PIERRE
Quebec
Montreal
Boston
New York
St. Louis
New Orleans
Havana
BAHAMA IS.
HAITI Fr.
PORTO RICO
SANTO DOMINGO
JAMAICA Br.
BELIZE Br.
Panama
SOUTH AMERICA
Mexico
Columbia
Colorado R.
Rio Grande
TROPIC OF CANCER
EQUATOR
ARCTIC CIRCLE
120 Longitude West 100 from Greenwich 80

of the St. Lawrence and Mississippi rivers, never developed settled, cohesive colonies, but scattered their energies over a wide territory and followed the semi-nomadic occupation of the fur trader rather than the settled life of the true colonist. The policy of the French kings, moveover, by which the population was placed arbitrarily in scattered military outposts instead of being permitted to effect compact settlements of home-seekers, made them yield to the English colonists when the final conflict came.

13. The United States. — The expulsion of the Dutch in the seventeenth and of the French in the eighteenth century had left England mistress of practically the whole of the eastern half of North America. By the war of the Revolution English supremacy ended, and the new nation of the United States of America fell heir to the territory south of the St. Lawrence and east of the Mississippi (with the exception of the Spanish possession of Florida), comprising 827,844 square miles.

14. Growth of solidarity. — Fortunately for the English colonists they had settled in a part of the country which afforded the geographic isolation necessary for the development of national life. Hemmed in on the west by an almost unbroken mountain wall, the Appalachian chain, which was moreover rendered all but impassable by a thick forest growth, they populated and developed a narrow strip of coast. The mountains and ocean formed at first the natural boundaries of their settlements, and also served as frontier defenses against the French and the Spanish. For the first one hundred and fifty years of colonial history the English settlers were limited to the Atlantic seaboard. This strip of tidewater land varied in width from fifty miles in New England to two hundred and fifty miles in the Carolinas. The contracted area and the stony nature of the land, which cost an infinite amount of labor to clear, held the New England colonists to their first settlements; when they needed an outlet for their energies they found it by way of the ocean. Farther south the larger available area and the extensive methods of tobacco

culture invited, almost compelled, the wider dispersion of the population. In general, however, the colonists were held compacted together, while their close contiguity developed a spirit of union and a feeling of solidarity. For the first one hundred and fifty years of their existence the relations between the colonies and the mother country were close and, on the whole, most friendly. When disaffection towards the mother country developed, they acted together with a unanimity which would not have been possible if they had been dispersed over a continent.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER I

The problem of exploration was, first, the technical difficulty of sailing on unknown waters by new routes; and secondly, that of inducing nations and individuals to undertake this expensive and venturesome task.

The problem of colonization was similar, that of inducing some men to invest their capital in the new colonies and of inducing others to go in person and settle there. Connected with this was the problem of the relation of the mother country to the work of colonization and exploitation.

1. "Name at least four important inventions or discoveries which closed the Middle Ages, and show how each of them affected Columbus's undertaking." — Channing. [C. Morris, Civilization, II, 11, 87; W. C. Webster, Hist. of Commerce, 108.]

2. Trace the migration of commercial supremacy among nations. [Morris, Civilization, II chap. 16; Brooks Adams, American Economic Supremacy.]

3. When did the Pacific Ocean first become important in the commerce of the world? How has it compared with the Atlantic?

4. Why was it considered necessary in the fifteenth century to find a new route to India? [E. C. Semple, Amer. Hist. and Geographic Conditions, 1–3; J. Fiske, Discovery of America, I, chap. 4.]

5. Are there any economic reasons why the early discovery of America by the Northmen should have been without effect? [Semple, *ut supra*, 5–7.]

6. What useful services, if any, did the English buccaneers perform? [C. P. Lucas, Historical Geography, II, 55; Encyclopædia Britannica, art. "Buccaneers."]

7. Why has the English race supplanted the Spanish and French races in North America? [W. Wilson, Hist. of Amer. People, II, chap. 2; Fiske, New France and New England, chaps. 1–4; Semple, Amer. Hist. and Geog. Cond., 25–31; G. Bancroft, Hist. of U. S., IV, 128–130.]

8. Why did the English expel the Dutch from New Netherlands? [Wilson, Hist. of Amer. People, I, 165; J. Winsor, America, III, 431–424.]

9. Are there any relics today of the Dutch patroonates?

10. Do we owe any distinctive elements of our national character or progress to the Dutch settlers? [E. H. Roberts, New York, chaps. 3, 4, 5; Fiske, Dutch and Quaker Colonies in America, II, chap. 17.]

11. Show the effect of the Seven Years' War on the history of France, England, and America. [B. A. Hinsdale, Old Northwest, chap. 5; J. Winsor, America, V, chap. 8; W. E. H. Lecky, Hist. of England, III, chap. 12.]

12. What was John Law's "Mississippi Bubble"? [Nicholson, Money and Monetary Problems, 165–208; Encyclopædias.]

13. What are the important colonizing nations today? Why did not Germany have a share in colonizing North America in the seventeenth and eighteenth centuries?

14. What is the policy of the United States in dealing with her colonial possessions at present? [W. F. Willoughby, Territories and Dependencies of the U. S.; A. Ireland, The Far Eastern Tropics.]

15. Read C. Kingsley's "Westward Ho!" and tell what you think of it.

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NOTE. — The double asterisk denotes the best references on the subject; the single asterisk good references; books without asterisks are good, but for one reason or another are not so useful for the subject of the chapter.

CHAPTER II

AGRICULTURE AND LAND TENURE

15. Colonial occupations. — During the colonial period agriculture was the main and, except in New York and New England, the only important industry. In those sections commerce and fishing afforded other outlets for enterprise, but even there agriculture remained the most important industry until after the beginning of the nineteenth century. When the first colonists landed they were compelled to resort immediately to the raising of food supplies, to keep them from starving, and what necessity dictated at first, was found later to afford the largest returns. In the Virginia Colony misguided efforts were made at the outset to direct the energies of the colonists into other channels, especially manufactures, by legislation and the offer of prizes and bounties, but the production of the more profitable tobacco soon absorbed all the energies of the colonists. In New England, on the other hand, the effects of a sterile soil and severe climate were supplemented by the restrictive legislation of England, which, by partially depriving the colonists of a market for their agricultural staples, helped to direct their efforts to fishing, ship-building, and commerce. The same circumstances characterized, to a less degree, the occupations of the middle colonies. In all the colonies, agriculture was the foundational industry, and limited and determined manufactures and commerce, where these existed.

16. Pioneer farming. — The great attraction offered by America to the industrious settler — as by every new country — was an assured and independent existence. Owing to the quantity of free land, to be had practically for the asking, and

the great fertility of the soil, even the pioneer with little or no capital could set up for himself and earn a living from the very beginning. Clearing a few acres for corn and a garden, and building a rude house alone or with the aid of his neighbors, he could, like the Indian, eke out his existence the first year or so with the aid of gun and net. After the second or third year, by clearing more land and raising a few cattle and hogs, his living was assured; and a large family, so far from being a burden, but made his work the easier. Such a pioneer farm, as were most of those in the northern colonies, was almost self-sufficing, producing practically everything needed in the household. All the necessary food, as well as flax, wool, and hemp for clothing, leather for shoes, lumber for building, were raised at home. The few things not thus produced, such as salt, sugar, tea, coffee, and iron implements, could be purchased with the surplus produce. Unless situated on a river, with easy access to a market, there was little or no money profit in such an undertaking; the average colonial farmer handled little ready cash in the course of his life

In the South the character of the staple products — tobacco, rice, indigo — demanded considerable capital, and consequently the lands fell into the hands of a wealthier set of proprietors. But even here the small farmer, without the necessary capital to buy slaves or a large plantation, was able to support himself in comfort, if not in luxury. The interior counties of all the southern colonies saw a considerable settlement of these yeoman farmers.

17. A Jack of all trades. — While practically every man in the early colonial period was a farmer, every farmer was at times also hunter and trapper, lumberman, or sailor. The pioneer settler, as later the frontiersman, supplemented his efforts in the fields by hunting and fishing as long as game abounded. Both for personal use and for sale for cash or supplies furs were in constant demand. With the growth of settlements and the disappearance of wild game, the colonist devoted his spare time to getting out rough lumber products,

such as planks, staves, and shingles. These could be made during the long winter months, by the fireside of an evening, while the women spun or wove. On the coast ships were built, and from every New England town many a farmer's boy went on the fishing expeditions to the Newfoundland Banks. It was not long before these industries became so important as to call for the full time of those who pursued them. With the growth of towns, there was increasing opportunity also for division of occupations, but the farmer in the rural districts had to be a Jack of all trades throughout the whole colonial period. Even in the towns a man was accustomed to turn his hand to almost anything that offered. Weeden gives an account of one John Marshall, who was a good typical specimen of such laborers. He " received about 4 shillings a day at Braintree from 1697 to 1711. He farmed a little, made laths in the winter, was painter and carpenter, was messenger, and burned bricks, bought and sold live stock. He was a non-commissioned officer in the Braintree Company, and a constable of the precinct. In one day he could make 300 laths."

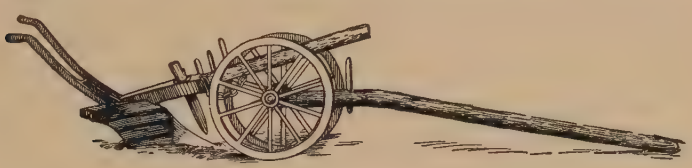
18. Agriculture of Europe. — We shall obtain the fairest picture of colonial agriculture if we notice briefly its development in Europe at the time when America was settled; for the general equipment of knowledge and implements with which the colonists began their work in this country determined their immediate advance. The principal cultivated plants of Europe, and more particularly Great Britain, at the beginning of the seventeenth century were few: wheat, barley, oats, rye, beans, peas, vetches, onions, cabbages, and apples. The list of tools was still shorter: those drawn by domestic animals were the plow, harrow, and cart; of hand implements, there were the sickle, hoe, and spade, essentially the same as had been used by the Egyptians four thousand years before; the flail and fanning mill, and the ax, completed the list. But simultaneously with the settlement of America there began a wonderful improvement in the agriculture of Great Britain through the introduction of the turnip and other root crops,

the clovers and artificial grasses. These made possible a more scientific rotation of crops and the abandonment of the wasteful two-field and three-field system. This improvement in British agriculture continued for over a century, from about 1600 to 1732, and emigrants to America during this period brought with them the results of these advances.

19. Indian agriculture. — The colonists were also the beneficiaries of the knowledge of the Indians, from whom they rapidly learned the best methods of raising the indigenous crops, as well as economical methods of clearing and preparing the land for cultivation. As the early colonists practically adopted the Indian methods a description of these will serve as a picture of primitive colonial agriculture. Localities naturally devoid of trees were selected for cultivation where possible, or partial clearings were made in the forest by killing the trees, either by girdling them with stone axes or by building fires around their bases. When they fell, they were burned into suitable lengths, rolled into a heap, and reduced to ashes; in this way the land was cleared with a minimum of labor. It was estimated that an industrious woman could burn off as many dry fallen trees in a day as a strong man could cut with a steel ax in two or three days. Even before the deadened trees fell the underbrush was cleared off and the corn planted amid the standing trunks. The corn was planted in rows, and a dead fish often dropped as a fertilizer into the hole with the kernels; later it was hilled a foot or two high, and beans and pumpkins planted between the rows. This primitive agriculture was not merely rude; it was extremely wasteful and disorderly. But it had the merit of yielding quick and fairly large immediate returns for a minimum of labor expended, and on this account was largely employed by the early colonists.

20. Colonial methods of farming. — The processes and methods of farming were primitive and traditional during the whole of the colonial period. Custom and often superstition controlled every step, and there was little or no advance made after the middle of the eighteenth century, when agriculture

had probably fallen to its lowest ebb. Rotation of crops was unknown and manures were but little used. The Swedish traveler Kalm, writing of the James River Colony in 1748–9, said, " They make scarce any manure for their corn-fields, but when one piece of ground has been exhausted by continual cropping, they clear and cultivate another piece of fresh land, and when that is exhausted proceed to a third." Near the



A Colonial Wheel Plow of 1748

The plow, which was clumsy and short, was sometimes attached to a pair of wheels. The ill-shaped share and mold-board did not plow deep or straight, and great strength and skill were necessary to guide the plow. " The wheels upon which the plow-beam is placed, are as thick as the wheels of a cart, and all the woodwork is so clumsily made that it requires a horse to draw the plow along a smooth field." (Kalm, " Travels in No. Amer.," II, 195).

seacoast, indeed, they did fertilize their crops by planting fish with the grain, as they had been taught by the Indians, but this was not everywhere possible.

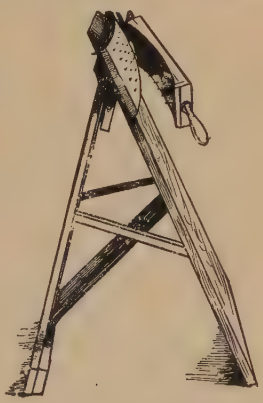
Contemporary critics invariably called attention to the wasteful and unintelligent methods of agriculture practised in all the colonies. The author of " American Husbandry," writing just before the Revolution, criticises severely the general practice of exhausting the land by planting the same crop year after year: " they have not a just idea of the importance of throwing their crops into a proper arrangement, so as one may be a preparation for another, and thereby saving the barren expence of a mere fallow." He complains of the lack of enclosed fields to keep out the cattle, of the insufficient and slovenly tillage — " worse ploughing is nowhere to be seen," — and finally of the poorness of their implements. On the other hand, it must be remembered that the soil was extremely rich and did not require very careful tillage to yield

large returns. And when the productiveness of the soil was reduced it was cheaper to take up fresh land, of which there were practically unlimited quantities, than to restore the exhausted qualities. In the colonies labor was the most expensive factor in production and everything was done to economize in its expenditure; land, on the other hand, was cheap and was used prodigally. From the standpoint of the colonial farmer this was good agriculture, but it shocked the traveler from abroad who was accustomed to an agriculture based upon dear land and cheap labor. While it was not possible to apply European standards to the totally different conditions in America, still it must be admitted that this process of "earth-butchery" led to bad habits and was ultimately wasteful — a fact to which the country has only recently awakened.

21. Experimentation and adaptation. — The first great task of the colonists was that of clearing the land and subduing the forces of nature; the second was to ascertain what crops were best suited to the new conditions. The problems presented to the colonists in the growing of crops were many and peculiar. They came to a country whose climate and soil were unfamiliar to them. The qualities of the native plants with which they were confronted had to be determined by experience. Seeds and plants from every part of Europe and even from Asia and the West Indies, which were brought here by settlers, had first to be tried in each colony before it was known in what soil or clime they would best flourish. For a century and a half this process of experimentation, adaptation, naturalization, and selection continued in all the American colonies, and so successfully that in the next one hundred years only a single commercially important new plant, namely sorghum, was introduced into the United States, and that about the middle of the nineteenth century. Hemp, indigo, rice, cotton, madder, millet, spelt, lentils, lucerne, sainfoin, were tried and failed in New England. In the southern colonies wine and silk culture, and such products as figs,

oranges, olives, cinnamon, and allspice, were tried, but were found unsuited to that climate. On the other hand, many European crops proved to be especially adapted to the new environment and have become fully acclimatized. There was, however, practically no improvement in the plants, vegetables, and fruits by culture and selection, after they were once introduced, except in the case of tobacco, rice, and indigo, the quality and preparation for market of which were all greatly improved.

22. Native plants. — To the early settlers the indigenous plants which they found in the new world were of far greater importance than those which they brought with them. Of these, by far the most important at the time and in the subsequent history of the country was *maize* or Indian corn. The advantages of this grain lay not merely in the speedy maturity, the large yield, the independence of seasonal changes, and the usefulness of all parts of the plant, but especially in the ease with which it was cultivated. The early settlers soon learned from the Indians the trick of planting it among the deadened forest trees, without plowing, with the pumpkin between the hills. Without this grain the early settlements would have been much more difficult of establishment. Maize, indeed, formed the main food crop of the colonists throughout their entire history.



HAND CORN SHELLER

To shell corn from the ears was one of the tasks carried on in colonial times during the long winter evenings. It was usually done by scraping the ears on the iron edge of the shovel or the handle of a frying-pan, but sometimes primitive hand-machines were used.

Of considerable consequence also was the *potato,* both sweet and white. The food value and methods of cooking the former were early learned from the Indians, and the sweet

potato was in general use throughout the southern colonies. While the early history is somewhat obscure, it seems certain that the white potato was carried from Peru or Chile, where it was indigenous, into Spain about the middle of the sixteenth century. From that country its use spread throughout Europe, and it was introduced from Ireland into North America by the colonists about 1718. Since that time it has been an article of general consumption, although it has not occupied such an important place in this country as in the European dietary. The early use was retarded by the superstition that if a person ate potatoes every day he would not live longer than seven years; they were called "Devil's apples."

Timothy is another distinctively American plant, its cultivation having begun about 1720. A few years later it was introduced into England from this country. This plant was of vast economic importance in the northern portions of the United States, where it was necessary to feed live stock during the winter upon hay gathered during the summer months. In the earlier colonial period cattle often starved to death in the long, severe winter, owing to a scarcity of food.

Among other plants which the early colonists found, and which had an important effect upon their dietary, should be mentioned the *pumpkin, squash,* and probably also the *strawberry.*

23. Tobacco. — Of all America's gifts to the old world the most widely accepted has been *tobacco.* It was mentioned in Columbus's diary for November 20, 1492, and is commonly understood to have been introduced from America into England by Sir John Hawkins about 1565. It soon came into general use and was made the object of regulation by successive English monarchs. In 1624 it became a royal monopoly, and in 1624, 1628, and again in 1631, the cultivation of the plant in England was forbidden, thus giving the colonial planters a monopoly of the British market. About 1616 its serious cultivation began in Virginia, and from that time increased rapidly, until it had displaced all other crops and most other

forms of industry. From the very beginning tobacco was one of the greatest articles of export from the North American colonies, constituting between one fourth and one half of all the exports during the colonial period. Tobacco combined a high value with a small bulk, and was thus well suited for export, as the cost of transportation was small in comparison with its value. The first shipment, in 1619, amounted to 20,000 pounds; in the ten years 1700 to 1709 the average

TOBACCO FIELD

Tobacco is grown in many parts of the United States, from southern Wisconsin to Louisiana, but the largest tobacco area, about 600 miles long and 400 miles wide, extends from Kentucky to Maryland, and from central Ohio to North Carolina. The illustration shows a modern tobacco field of the best type, as is evidenced by the size of the plants. The head of the plant to the left of the man is tied up in white paper to catch the seed.

annual export was 28,958,666 pounds; by 1775, 85,000,000 pounds were exported annually, whose value was about $4,000,000.

The production of tobacco was carried on in a very wasteful manner: the land was cleared by girdling the trees and was then planted in tobacco for three years and afterwards in corn.

As artificial fertilizing was not resorted to, this method resulted in exhaustion of the soil in from three to eight years, when fresh land had to be taken up. The population was consequently widely dispersed, the plantations of Virginia in 1685 covering an area as large as England itself.

24. Other plants. — The principal European grains and fruits were early introduced into the colonies, and their cultivation proceeded side by side with those of native origin. Indeed, the majority of the plants of great economic value to-day are of foreign origin. Next to maize the principal crops of the North were rye and buckwheat, and following these wheat, oats, and some barley. The culture of wheat was given special attention and met with considerable success in the middle colonies. In the southern colonies, after tobacco, rice was the most important crop. Introduced into South Carolina in 1694, it grew abundantly; by 1724, 100,000 barrels were exported from that colony alone, and in 1761, when the white population was not more than 45,000, the value of the rice crop was over $1,500,000. Little cotton was produced during this period, but indigo, which was first successfully planted in 1741, was of considerable importance; in the last decade before the Revolution, South Carolina alone exported 500,000 pounds a year, worth from two to five shillings a pound. Various fruits were early brought over from Europe, and grown wherever climate and soil were favorable, of which apples and pears were the most common; in addition to these were stores of wild fruits, as plums, grapes, and cherries, and berries and nuts to be had for the gathering.

The following table[1] gives a partial list of plants of American origin:

[1] Hunt, Lectures on History of Agriculture, 99.

	Very ancient cultivation in America	Cultivated before discovery of America, but of no great antiquity	Cultivated only since discovery of America
Cultivated for underground parts	Sweet potato	Jerusalem artichoke Potato	
Cultivated for stem and leaves	Tobacco	American aloe	Quinine Timothy Orchard grass
Cultivated for fruit		Pumpkin Squash Red pepper Tomato Pineapple	Strawberry [Cranberry?]
Cultivated for seeds	Maize	Sugar bean Barbadoes cotton Peanut	

In general the principal agricultural products of the colonies were as follows: New England and the middle colonies, corn, rye, oats, buckwheat, wheat, and barley, with some tobacco from Connecticut; Maryland and Virginia, tobacco; the Carolinas, tobacco, rice, indigo, corn, and a little cotton; Georgia, rice and indigo. Wool, flax, and hemp were also raised in considerable quantities for home use in the different colonies, as were the more common vegetables such as turnips, onions, peas, carrots, parsnips, pumpkins, and cucumbers.

25. Live stock.— European cattle were imported into Spanish, French, and English colonies at a very early date, and increased very rapidly, especially in the South and Southwest. The cattle brought over from England were much smaller than our present stock. According to Prothero, the average size of cattle and sheep sold in Smithfield market, London, as late as 1710, was: beeves, 370 lbs.; calves, 50 lbs.; sheep, 28 lbs.; lambs, 18 lbs. The reason for the small size was that little or no attention was paid to the culture of grasses and vegetables for feeding the stock; they were left to

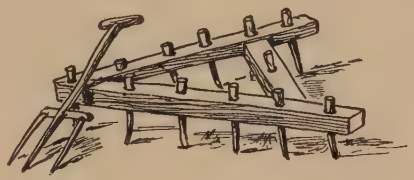
graze, winter and summer. In 1795, after the general introduction into England of root crops and artificial grasses and clovers, the weights in London were: beeves, 800 lbs.; calves, 148 lbs.; sheep 80 lbs.; lambs, 50 lbs.

The severe climate of New England caused a deterioration in the stock of that section; in the southern colonies, where they were turned loose in the forests, they multiplied rapidly. The author of "American Husbandry" reserved his severest criticism for this feature of American farming: "Most of the farmers in this country are, in whatever concerns cattle, the most ignorant set of men in the world. Nor do I know of any country in which animals are worse treated. Horses are in general, even valuable ones, worked hard and starved: they plough, cart, and ride them to death, at the same time that they give very little heed to their food; after the hardest day's work, all the nourishment they are like to have is to be turned into a wood, where the shoots and weeds form the chief of the pasture; unless it be after the hay is in, when they get a share of the after-grass. . . . This bad treatment extends to draft oxen; to their cows, sheep and swine."

By 1639, the Jamestown Colony, in spite of this bad treatment, already had 30,000 cattle; in 1770, Wynne described the large herds, often numbering a thousand cattle, that were found in the Carolinas. Cattle-raising was an important frontier industry in many of the colonies, and dairy products were yielded in all of them for home use. Considerable quantities of butter and cheese were produced in New Jersey for export. Hogs multiplied rapidly, especially in the Southern colonies, where they ran at large in the forests. As a result there grew up a considerable export of pork; and Virginia hams and bacon came thus early to have a high reputation. Of animal food there were also, in addition to domesticated animals, plentiful supplies of wild game and fish in all the colonies.

26. Farm implements. — One of the greatest obstacles to agricultural progress was the scarcity and rudeness of the

farming implements which the colonists possessed. Plows were imported from time to time, but they were extremely heavy and unwieldy. In 1637, there were but 37 plows in the colony of Massachusetts Bay, and towns often paid a bounty to any one who would keep a plow in repair, in order to do the plowing for the community. Virginia was rather better off in this respect, having 150 plows in 1648. The massive old wooden plow, with mold-board of wood, required frequently four oxen and three men to manage it. In addition to this implement, the colonists had the spade, a clumsy wooden fork, and now and then a harrow. All of these were rudely made of wood; the only metal available was made of bog iron ore, which was very brittle and made the implement liable to break in the middle of a day's work. The grain was cut with a sickle or "hook" and was usually separated from the chaff in the southern provinces by the treading of horses on threshing-floors; in the North the flail, though slower, was more generally used. Hay and straw were raked and pitched by hand-rakes and forks made entirely of wood. Methods of farm transportation developed slowly, owing to the bad roads. Skids were sometimes used, and two-wheeled carts were common; a cart-wheel shod with iron was a prized possession.



WOODEN HARROW AND FORK

The harrow was triangular, and yoked with one of the angles forward in order to pass more easily around stumps of trees and other obstacles. The teeth of the harrow, as well as the fork, were made entirely of wood.

27. Appropriation of the land.—The claims of the European nations[1] to the lands of the New World were based upon priority of discovery and exploration, of conquest, and of settlement. Of these the last named was the most important and the decisive factor in giving title. Thus the papal bull

[1] See map on page 7.

dividing the newly discovered lands between Spain and Portugal did not deter other nations from taking possession of territory which they wished. Nor was greater regard paid to the rights of the original possessors of the land, the Indians. Some of the proprietors, like William Penn, or the states, like New York, made treaties with the Indians, by which these ceded their possessions to the white man; and after the establishment of the union the federal government was always careful to make treaties with the Indian tribes in which cessions of the land were made. But the early settlers were usually satisfied with titles to ownership based upon royal grants, and did not inquire too closely into the right of the European monarchs to claim and dispose of the land.

28. Land tenures. — At the time of the settlement of North America, land in Europe was still generally held on feudal tenures, and the possession of land carried with it both social and economic privileges. The land system was a most intricate one, and land could be transferred only by elaborate feudal methods, while the rights of inheritance and bequest were still further limited. Ownership vested in a few, and not even the greatest thrift could obtain for the poor man a farm of his own. But land in a new country, where it could be had almost for the asking, soon came to be held and transferred like any other species of property, and ownership of it conferred no special rights, except as it was generally made a condition to office-holding or the franchise. In some, especially the proprietary colonies, large estates were created whose proprietors enjoyed special privileges, while it was also made difficult for small cultivators to obtain land.

The prevailing theory in England was that the title to land in America was vested in the crown, and from him all subsequent rights were derived. By grant from the crown land passed to chartered companies and to proprietors and was by them regranted to individuals, while in the royal provinces the governors were given authority to make grants of land directly. By one way or another the land passed into the

possession of the actual cultivator. Many of the grants, especially those to the proprietors, were made under some form of feudal tenure, such as the exaction of an annual quit-rent. This followed from the theory that the king could not alienate the property of the crown and that the proprietor was really a tenant. When the proprietors in turn regranted the land, they also exacted a quit-rent which, though it was generally merely nominal, also proved a troublesome feature. The Revolution, however, swept away practically all traces of feudal land tenure or of feudal land laws.

29. Land-holding in New England and the middle colonies. — When the first settlement was made, the Pilgrims held their land and other property on a communal basis, turning their labor and products into a common pool, but a few years of failure caused the abandonment of this plan, as had been the case several years before in Virginia. Each of the original or new settlers was granted a certain number of acres as his share in the colony. Large estates never became the rule in New England, but small farms were typical, owing largely to the character of the soil and the crops, which necessitated careful cultivation. Throughout the whole section, and as far south as Delaware, communal holdings in the towns were also found; fields — usually three — were at first held in common, and the cultivation was decided each year in general meeting. Later, as the towns filled up and grew strong enough to protect outlying fields against raids, the arable meadow and wood land was divided.

In the middle colonies, the land system was practically the same as in New England, both in character and results. Small farms held in fee simple were the rule. The only exception lay in the large manorial grants made by the Dutch and confirmed and extended by the early English governors in New York. The manorial system, however, was restricted to the valley of the Hudson, and the large estates of from 50,000 to even 1,000,000 acres lay in large part uncultivated until they were broken up into small holdings. The type of

agriculture in the northern colonies as a whole, however, was self-sufficing, aiming to supply only the wants of the colonists, as little demand existed abroad for their grain. This self-sufficing system made necessary a large number of small farms worked by their owners, and these in turn produced a democratic type of society.

30. The plantations of the South. — While small farms were characteristic of the North, large plantations were in vogue in the South, though in both sections there were exceptions to the general rule. These large landed estates were owned by comparatively few proprietors, who constituted an aristocratic upper class in a strongly stratified society. The difference between New England and the South was mainly the result of economic causes: the fertile soil and the presence of a few staples for which there was a good market abroad, and which lent themselves to intensive cultivation, made the large plantation profitable in the southern colonies. They consequently devoted themselves to the production of tobacco, rice, indigo, and sugar cane, and developed a commercial type of agriculture, which demanded a large supply of cheap labor. The average size of the Virginia estate was about 5000 acres, while in New England the average farm was probably not far from 100 acres. On the other hand, in the seventeenth century, the value of an acre of New England land was about fourteen times that of an acre in Virginia.

The law and practice regarding grants and inheritance was also partly responsible for the enormous estates of Virginia and of other colonies. Grants were made to the companies and "adventurers," who undertook to establish colonies; as "head right" for the importation of settlers; to the settlers themselves; for meritorious service, to clergymen, physicians, and even to servants; or as gifts for purely personal reasons. The occupation of the land granted and the payment of a small annual quit-rent were the usual conditions to the issuance of a patent or title deed.

Inheritance in the southern colonies, as also in New York,

followed the law of primogeniture; the principle of entail was even more strictly applied in these colonies than in England. In New England and Pennsylvannia, while the right of the eldest son was still recognized, he received only a double portion, the rest of the property being divided equally among the other children. Primogeniture and entail were not abolished entirely until the Revolution.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER II

The problems presented to the colonists in connection with agriculture were several. The one first solved was how to raise the necessary food supplies; then came those of determining the best crops for each section and the most profitable methods of production, and of obtaining the necessary capital in the form of farm implements. Finally, the best methods of distributing and granting title to the land were worked out.

1. What were the characteristics of land tenure in feudal times? [W. D. P. Bliss, Encycl. of Soc. Ref., art. Land; A. R. Wallace, Land Nationalization, 22–25; E. de Leveleye, Primitive Property.]

2. What objections are there to primogeniture and entail. [J. S. Mill, Princ. of Pol. Econ., book 2, chap. 3; Bliss, Encycl. of Soc. Ref., art. Entail; R. H. I. Palgrave, Dict. of Pol. Econ.]

3. Describe the two-field and three-field systems of agriculture in Europe. [L. L. Price, Engl. Com. and Ind. 25, 102; W. Cunningham, Outlines, 172–174; G. T. Warner, Landmarks, 20, 27; E. P. Cheyney, Introduction, 36.]

4. Compare the life of a tenant farmer in England with that of a free farmer in the colonies. [A. Brown, Genesis of U. S., I, 252, 352, 506, 688; American Husbandry, I, 122, 190–191.]

5. Is "earth-butchery" still practised in the United States?

6. Do you know of any plants that have been tried and have failed to grow in your locality? Why?

7. Where did the herds of horses which the later western pioneers found on the prairies come from. What was the origin of the so-called "native" cattle?

8. Describe the treatment of the Indians in the acquisition of title to land by the whites. [P. A. Bruce, I, 487–499.]

9. Why did the attempts at communalism fail at Jamestown and Plymouth? [J. Fiske, Old Va. and Her Neighbors, I, chap. 4; H. L. Osgood, Amer. Col. in XVIIth Cent., I, part 1, chaps. 3, 5; A. Brown, Genesis of U. S., I, 402–413.]

10. Was it wise for the early colonists to kill and burn the forests?

11. Where were the forests most extensive? [N. S. Shaler, in J. Winsor, Hist. of Amer., IV, xiv.]

12. Describe the attempts of the colonists to produce wine, silk, etc. [J. L. Bishop, Hist. of Amer. Manufactures, I, *passim*.]

13. Compare the native edible plants, and animals capable of domestication, in the old and new worlds. [Shaler, Nature and Man in America, 145.]

14. How did the colonists gain title to their land? Was the same true in all colonies? [K. Coman, 28, 32–38; Bruce, I, 502–519; Osgood, Amer. Col. in XVIIth Cent., I, part 2, chap. 11.]

15. What effect has the cultivation of tobacco had upon the economic organization of Virginia? [K. Coman, 56–57; Bruce, I, chap. 7; Fiske, Old Va. and Her Neighbors, I, 223–231, II, 184–220; J. C. Ballagh, Land Syst. of So., 117–119.]

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CHAPTER III

COLONIAL INDUSTRIES

31. Industries in the colonies. — The economic life of the colonies was extremely simple, the main energies of the people being directed to the extractive industries. In addition to agriculture, which naturally in a new country claimed the first attention of the colonists, other industries soon sprang up as needs and opportunities directed. In New England, where agriculture by reason of the unfertile soil was least profitable, the chief occupations were lumbering, ship-building, trading, and fishing. The people of the middle States engaged in the fur trade, and, as did those of New England, in the manufacture of a wide range of household supplies; carpentry, blacksmithing, and tanning were generally carried on in every community, while the spinning wheel, the loom, and the hand card were to be found in almost every house. In the South, on the contrary, there were few industries outside the plantations of sugar, tobacco, rice, and indigo; some naval stores were produced, chiefly in North Carolina, but the varied household manufactures of the North were largely lacking on the larger plantations, even the most necessary supplies being procured from the northern colonies or from England.

32. Lumbering. — From the very beginning the efforts of the colonists were directed to the utilization of the almost exhaustless resources of the forests which surrounded them. Upon these were based four industries — lumbering, shipbuilding, the production of naval stores, and the making of potash. Wood was used for the building of houses, the construction of furniture and implements, for firewood and other household purposes. Excellent barrel staves were made of oak,

which were in great demand for sugar in the West Indies and wine from the Canary Islands, as well as for the fish, meat, flour, rosin and molasses, naval stores, and whale oil, which were important items of colonial trade. In order to utilize the forest resources it was necessary to have sawmills, and these were early built. The first mill in the colonies is stated by Bishop to have existed in Dorchester, New England, as early as 1628, which was thirty-five years before they were introduced into England. The Dutch built many mills along the Hudson to run by wind or water. Most of these mills were built where there was water power and here the forests were rapidly cut down and converted into merchantable timber. Farther inland, where power and water transportation were lacking, the magnificent forests were regarded rather as an encumbrance and were burned off. Some potash was made from the wood ashes, but this was a by-industry of land clearing and was seldom pursued for its own sake. Bark was used for tanning.

A large export trade in lumber products early developed, consisting chiefly of stores and heading, shingles, hoops, planks, and timber of various sorts for masts, spars, and buildings. Even by hand a man could make 15,000 clapboards or barrel staves in a year, which, according to Gent, were worth in the colonies £4 per thousand, and in the Canaries £20. Owing to the rapid destruction of her own forests in the iron industry, England endeavored to secure for herself the colonial supply of timber and placed it upon the list of " enumerated " articles, while early in the eighteenth century she provided for its importation free of duty. Trees suitable for masts were marked with a broad arrow and reserved for the use of the royal navy, under a penalty of £100 for their alienation to other purposes. In spite of these acts most of the lumber exported went to the West Indies and to Spain and Portugal. In 1770 the value of the lumber exported from the colonies was about $775,000.

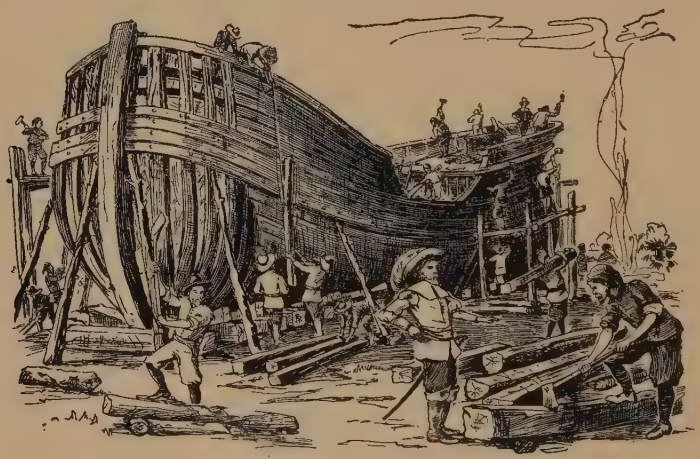
33. Naval stores. — Closely allied to lumbering was the

production of naval stores, which Parliament made vigorous efforts to develop during the eighteenth century. England had imported these articles principally from Sweden, and when at the beginning of this period the Swedish company which controlled their supply attempted to raise the price, Parliament turned for relief to the North American colonies. In 1706 generous bounties were given on the importation of tar and pitch, on rosin and turpentine, upon water-rotted hemp, and upon all masts, yards, and bowsprits. Except in North Carolina this policy was not very successful in stimulating the production of these articles. In 1770 the quantity of tar exported was 82,005 barrels; of pitch, 9114; and of turpentine, 17,014 barrels, worth in all about $175,000.

In addition to the naval stores, pot and pearl ashes, oak bark, and some other products of the forests were produced in considerable quantities for exportation to England, where they were used in the shipbuilding, bleaching, tanning, and other industries of that country; their value in 1770 was estimated at $290,000.

34. Ship-building. — One of the most important industries in the colonies, particularly in New England, was ship-building. The industry was begun within three years after the establishment of Plymouth Colony, and by 1641 had already grown to such proportions as to require official regulation. In 1676 Massachusetts had a total of 730 vessels. Owing to the large supplies of splendid timber at the water's very edge, cheaper and better vessels could be built in the American colonies than anywhere in Europe. Towards the end of this period an oak vessel could be built in Massachusetts for $34 a ton, while neither in England nor on the continent could a similar vessel be built for less than $50 a ton. American ships soon began not merely to carry on a vigorous trade at home, but to crowd out English shipping in their home ports. About fifty New England built vessels were annually sold abroad, and by 1775 about 398,000 tons, or nearly one third of the tonnage afloat under the British flag, had been built in American dockyards.

The ship-builders on the Thames more than once complained to Parliament of the effect of American competition upon their industry, but it must be noted that in this instance the Board of Trade placed no restriction upon the colonial industry. Indeed the effect of the navigation acts, which restricted all trade to English and colonial built shipping, greatly stimulated ship-building in the colonies. A contemporary account placed the number of American ships at 2000, and of



COLONIAL SHIP-BUILDING

Sea-going vessels began to be built in New England after 1630, and were soon sufficient for home needs. Planks of oak and tall, straight masts of fir could be had almost at the water's edge, while everywhere was pitch pine for the making of tar and turpentine. The colonists soon became excellent shipwrights.

seamen at 33,000, in 1775. The proportion of the vessels engaged in foreign trade owned at home differed greatly in the various colonies: in New England three fourths of such vessels were owned by men living in that section, while in the South only one fourth was so owned.

35. Fishing. — For years before the first English settlement in North America English fishermen had frequented the New England coast and established summer fishing stations, in

some years employing as many as two hundred vessels and two thousand men and boys in the Newfoundland fisheries. To the settlers at Plymouth John Smith gave some blunt but sensible advice, "the staple from hence to produce is fish," and it was in the fisheries in truth that New England gained her greatest wealth. The industry was developed early and throughout the whole of the colonial period remained a lucrative one. The cod fishery began about 1670, and developed so rapidly that within five years 665 vessels were employed in this industry, which required the services of over four thousand seamen. The cod fish were dried and salted and formed the basis of a profitable export trade, the best grades being sent to the Catholic countries of Europe, and the poorest to the West Indies for consumption by the slaves, while the "middlings" were consumed for the most part at home.

About 1700 the whale fishery was begun and prosecuted with such success that by 1721 two hundred and sixty vessels were employed. Within fifty years the whales deserted the American coast, but were followed to the Arctic and Antarctic oceans by the whalers. In 1771 this business employed 304 vessels, with 4059 seamen. Upon the spermaceti oil thus obtained was erected a candle-making industry of some importance. Oil and whalebone were also exported.

The fishing industry was confined exclusively to New England and was estimated to bring in about £255,000 a year; during the colonial period not a vessel engaged in either the cod or whale fisheries was owned south of Connecticut. For that section it possessed great economic significance. The development of the cod and mackerel fisheries provided New England with a needed staple for foreign trade; they made the inhabitants a commercial and sea-going people, giving them a wider outlook and breaking down the isolation of a purely agricultural community; whale fishing brought in larger vessels and the practice of making longer voyages. The training which New England seamen received in the fisheries made them the best and most daring sailors in the world.

36. Fur Trading. — As wild animals abounded in the primeval forests of North America, trade in their valuable furs and skins was early developed, and throughout the colonial period remained an important frontier industry. The earliest English colonists traded for furs with the Indians in New England, but New York soon became the most important center of this trade because of its advantageous situation at the mouth of the Hudson River. The fur trade in New Netherlands was a monopoly of the Dutch West India Company, and so lucrative was the business that their first shipment of furs is reported to have brought in a profit of over $10,000; in eight years the annual return had amounted to $56,000; So profitable a business aroused keen competition and the British fur traders pushed up the Hudson River to the Great Lakes, where they established a station at Oswego to intercept the Indians on their way down the St. Lawrence to Montreal, out along the valley of the Mohawk to the Illinois country, and across the Alleghanies to the Ohio River. There they came into conflict with the French, and the competition over the fur trade was one of the chief immediate causes of the French and Indian War.

The fur trade possessed great economic importance in the early history of this country, because it furnished a ready, cheap, and yet valuable article of export for the northern colonies. But more than this, it furnished the initial incentive to westward exploration and settlement. As population became more dense and game more scarce the fur traders followed the retreating supply across the Alleghanies and farther west. The trading posts were soon taken up by the settler and the frontier was pushed ever farther from the coast. In order to secure the diminishing supply for her own use, England in 1764 placed hides and skins on the list of enumerated articles. In 1770 the exports of furs and peltry from all the North American colonies, which included Canada, were about $670,000.

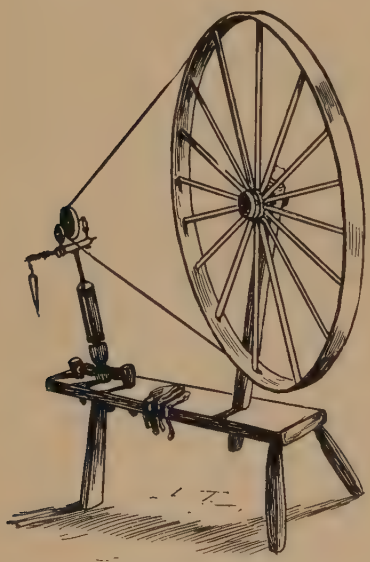
37. Household industries. — During the seventeenth and

eighteenth centuries the domestic system of industry prevailed in England, under which handicrafts were carried on by workmen in their own homes. Many of the immigrants to America during this period had been artisans at home and brought with them to the new world considerable knowledge and skill in the mechanic arts. Furthermore, the sparse and scattered population made it necessary for the colonists to provide many things for themselves, for they were too civilized to revert to the rude Indian mode of life. In all the northern and middle colonies accordingly household industries flourished, and many of the farms and plantations were nearly self-sustaining economic units. These household industries supplied only family needs and did not absorb the entire time of any one person; they were therefore confined to those branches which did not call for either expensive tools or special skill. Foremost among these were the textile industries — the breaking of flax or hemp and the ginning of cotton, the combing of wool and the other fibers, spinning, weaving, dyeing, and fulling. Another group of industries, which was carried on by almost every household, was that connected with the slaughter of live-stock, such as the curing and salting of meat, and the making of lard, tallow, candles, and soap.

In addition to these household industries there were other branches of manufacture which required special skill and mechanical appliances, and these were carried on in workshops by skilled craftsmen. The number of handicrafts carried on in the colonies prior to the Revolution was quite large; among the more important trades were tailoring, tanning, shoemaking, saddlery, hatmaking, coopering, blacksmithing, and ship-building. Finally, there was still another miscellaneous group of industries, which do not come within either of the other classifications, such as the production of naval stores, potash, bricks, brewing, and iron manufactures.

38. Attempts at manufacturing. — Manufacturing proper, that is the production of goods outside the home for sale in the market or for export, never developed very far during

the colonial period. Even Bishop, the diligent historian of American manufactures, admits that the history of the efforts made during the first one hundred years to introduce the manufacturing arts into the American colonies is "little more than a record of unsuccessful enterprise." Yet, even from the first, experiments were made in manufactures and several of the colonial governments gave special encouragement to such enterprises by bounties and other legislation. When iron came from Spain, leather from France or Germany, cloth from England, it was thought that it would be more economical to produce these things at home. The first efforts of the Virginia Colony were devoted in 1608 to the manufacture of pitch, tar, soap-ashes, and clapboards. But this was done under the direction of the council in London; Captain John Smith saw better the needs of the situation, and begged them to send over "husbandmen, gardeners, fishermen, blacksmiths, masons, and diggers up of trees' roots." These early experiments were mainly abortive, for the colonists soon found that they could more profitably devote themselves to other pursuits. The scarcity of labor, the lack of capital, and the hard conditions of pioneer life prevented the earlier colonists from engaging in the manufac-



SPINNING WHEEL

On the spinning wheel the carded wool or prepared flax was drawn out into long, even yarn or thread. The spun yarn was later woven into cloth. So important a part did spinning play in the home life of colonial women, that an unmarried woman was known as a "spinster" from her chief occupation.

ture of products other than those which were absolutely necessary. South of the Potomac, indeed, even the necessaries of life were imported from Great Britain; manufacturing was developed, so far as it was developed at all, largely in New England and the middle colonies.

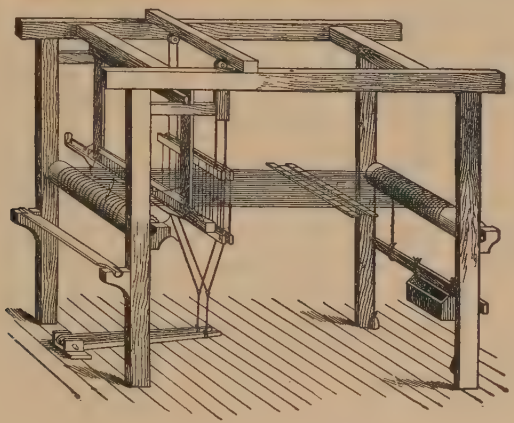
39. Textile manufactures. — The spinning and weaving of coarse "homespun" woolen and linen cloth for domestic use was carried on within the family from the earliest period of colonial history. Later, especially with the coming of immigrants skilled in the textile industries, the manufacture was more developed, and fulling mills were built. The investigation made by the Board of Trade and Plantations in 1731 "with respect to laws made, manufactures set up, or trade carried on in the colonies, detrimental to the trade, navigation, or manufactures of Great Britain," showed that the northern colonies already produced much of the cloth they consumed. Taking them altogether, the colonists probably made about three fourths of the textile goods for domestic use, but these were almost exclusively of the coarser grades. The finer qualities of linens and other goods continued to be imported from England and Ireland throughout this period.

40. Iron manufactures. — Iron was found in all the colonies in considerable abundance, in the form of bog iron ore, and its ease of mining and working, together with the abundance of fuel and water power, led to an early development of the iron industry. Raw iron, agricultural implements, household utensils, tools, and hardware were produced in growing quantities, most of the iron wares being manufactured in the northern colonies, while raw iron was mined in the South, converted into bar or pig iron, and exported thence to England. The reports of the governors of various provinces in 1731 showed some six furnaces and nineteen forges, all in New England, but this was undoubtedly an understatement; they produced "not one fourth part enough to serve their own use." Twenty years later the colonies reported four slitting and rolling mills, ten forges, and five steel furnaces.

The development of the industry in the colonies led Parliament to prohibit, in 1750, the erection of any slitting or rolling mill, plating forge, or steel furnace, under a penalty of £200, in order to protect the home manufacturers. This act was one of the most injurious of the commercial restrictions upon colonial industry. At the same time the act provided for the development of the production of pig and bar iron by admitting it into the port of London free of duty (in 1757 this was extended to any port in England). England was at this time importing some 20,000 tons of Swedish and foreign iron, and hoped by this act to secure her raw material from the colonies and at the same time to stifle the growing manufactures there. The exports of pig iron grew slowly, under the stimulus thus given, from about 2000 tons in 1745 to over 7000 tons in 1771.

41. Other manufactures. — Various other manufactures existed in the colonies at an early period and were gradually developed to meet the growing wants of the people. Most of these, however, were for local consumption, and on a small scale. Such were corn and grist mills; leather goods of all descriptions, as boots, shoes, breeches, gloves, harness, and saddlery; furniture, cabinet wares; wagons, carriages, carts; cooper's wares, brass or copper wares, tinwares; bricks, tiles, and potteries; cordage, twine, and sail cloth; paper; spirituous and malt liquors; salt; and beaver hats. Some of these articles were produced in sufficient quantities to allow of export to the other colonies, the West Indies, or even to England. Thus the Board of Trade and Plantations reported in 1731 that about 10,000 beaver hats were made annually in New England and New York; in the same year, in response to a petition of the London hatters, the exportation of hats from the colonies was prohibited and their further manufacture limited. The distillation of rum from West Indian molasses was an important New England industry, employing at one time over twenty distilleries in Newport alone; this was penalized by heavy duties by act of Parliament in 1733, though

the act was not enforced. Of the other industries the most important were the manufacture of bricks and tiles, leather goods, cordage and sail cloth, and printing and paper making.



THE HAND LOOM

The weaving of the spun yarn was done on the loom. The two frames suspended from the top of the loom held the warp, the threads of which ran lengthwise of the piece of goods; these were moved backward and forward by the pedals below, which were operated by the feet of the weaver. The woof threads were woven into the warp by means of shuttles, which were thrown by hand back and forth between the woof threads. The power loom of to-day is constructed on the same principles, but is nearly automatic in operation.

42. Colonial bounties and tariffs. — In accordance with the prevailing mercantilist doctrines the colonial governments, as well as that of Great Britain, thought it necessary to regulate trade and industry by legislation, and consequently practically every one of the colonies passed laws providing for bounties or duties. As the production of domestic cloth was especially desired, seven of the colonies offered bounties to stimulate the growth of wool and linen and their manufacture into cloth. Massachusetts, for instance, in 1640, ordered a general bounty of twenty-five per cent. on cloth production " for the incuragement of the manifocture," but repealed it three years later on account of the heavy drain on the treasury. Bounties were

also offered for the production of silk, paper, iron, and fire-arms, by the various colonial governments; and of vines, indigo, cochineal, silk, and hemp by the London Society of Arts and Manufactures.

On the other hand, import or export duties were imposed by the colonial legislatures in nearly every colony in addition to those levied by England. These were sometimes for revenue purposes simply; sometimes for sumptuary, retaliatory, or protective purposes. No consistent or permanent policy was followed in these tariffs, and they were as frequently directed against neighboring colonies as against foreign nations. Professor William Hill classifies the main tariff duties under four heads: (1) tonnage duties or taxes on shipping; (2) export duties on tobacco; (3) import duties on slaves; (4) regular tariff schedules, in which wines and liquors were the most important items.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER III

The problem of industry in a new country is how to get the largest returns from the environment. After satisfying certain primary needs, which may best be done within the family or community, the question arises as to the choice of industries and of the methods by which they may most profitably be carried on.

1. Why did England desire to promote the culture of silk in the colonies? [A. Smith, Wealth of Nations, book IV, chap. 2; G. Schmoller, The Mercantile System, 83 ff.]

2. Is raw silk produced in the United States to-day? Where does it come from? Why? [C. C. Adams, Com. Geog., 101.]

3. Are the fisheries off the Newfoundland Banks open to all nations alike? Has it always been so? [J. B. McMaster, IV, 457–469; E. Schuyler, Amer. Diplomacy and Commerce, chap. 8; J. B. Henderson, Amer. Dipl. Questions, 471–500; W. J. Abbot, Amer. Ships and Sailors, chap. 9; W. L. Marvin, Amer. Merch. Marine, chap. 13.]

4. Description of the lumber industry in the colonies. Has it progressed since? J. F. Defebaugh, Hist. of Lumber Ind. of Amer., chaps. 26, 30; C. D. Wright, Ind. Evol., chap. 6.]

5. Describe the character and size of colonial vessels; the extent of their voyages and the kind of cargoes. [Marvin; Abbot; Coman, 77.]

6. Description of whale fishing. [Abbot, chap. 4; Marvin, chap. 8; W. B. Weeden, I, chap. 11; T. Pitkin, Stat. View of U. S. 43–47.]

7. Description of cod fishing. [E. R. Johnson, et. al., Hist. of For. and Dom. Commission of the U. S., I, chap. 9; R. McFarland, A History of the New England Fisheries.]

8. How far west did the fur traders push? What kinds of furs did they get? [Crittenden, The Amer. Fur Trade of the Far West.]

9. History of the Hudson Bay Company. [Beckles Willson, The Great Company; Encycl.]

10. What is the etymological meaning of "manufacture"? Is the original or the modern meaning more applicable to colonial manufactures? [Century Dict.]

11. How large were the early manufacturing enterprises in the colonies? Why was so much pains taken to develop them? [J. L. Bishop, I, index, "Manufactures."]

12. What effect did the exclusion by Great Britain of New England's agricultural products have upon the development of manufactures and commerce in that section? [G. L. Beer, Com. Policy of Eng. to Amer. Colonies, 389; W. B. Weeden, I, 142.]

13. Where was mining developed in the colonies? Are any metals obtained from those same sections to-day? Why? [Bishop, I, chaps. 17, 18; M. D. Swank, Hist. of Manufacture of Iron, chaps. 9–11.]

14. Why did the colonies levy import duties against one another? Why do the states not do so to-day? Which is better?

15. Describe the domestic system of industry. [E. W. C. Taylor. Factory System; W. J. Ashley, Early Hist. of Woolen Ind., in Publ. Amer. Econ. Asso., II, 366; also in Econ. Hist.; E. P. Cheyney, Introduction, 153, 185, 188, 220; E. R. A. Seligman, Princ. of Econ., 92.]

16. Describe more fully the following colonial manufactures: printing, brewing, paper, glass. [J. L. Bishop, I, see index; C. D. Wright, Ind. Envol., 5; E. Eggleston, Commerce in the Colonies.]

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CHAPTER IV

THE SYSTEMS OF LABOR

43. The growth of population. — During the seventeenth century the population of the English colonies in North America, after the first influx in 1630–40, grew but slowly. By 1640 there were only 25,000 whites in British North America, of whom sixty per cent. were in New England and most of the rest in Virginia. In 1660 this number had increased to 80,000, the largest gains having been made in Virginia and Maryland, which now had one half of the entire population. From this time on the middle colonies began to increase in importance, and in 1690 had about one fifth of the population of 200,000. A round half million seems to have been reached, according to Bancroft, in 1721, and a million in 1743; by 1770 the two million mark had been passed.

It is impossible to say how much of this increase was due to immigration and how much to natural increase, but in view of the dangers and difficulties of emigration, it is probable that after the first settlements the increase was mainly natural, though there was some immigration of Huguenots and Germans. Franklin, when he estimated in 1751 that there were "near a million souls" in the colonies, thought that scarce 80,000 had been brought over by sea. Subsistence was cheap, so that there was no check upon the rapid increase of the population, which doubled about every twenty-three years. The majority of this population was of English stock, but even where the elements were diverse there was a steady and successful pressure upon the succeeding generations to make Englishmen of them. In 1775, Bancroft speaks of the colonies as inhabited by persons only "one fifth of whom had for

mother-tongue some other language than English." In New England, where the population was most homogeneous, it was computed that at the time of the Revolution ninety-eight per cent. of the population were Englishmen or of unmixed English descent.

44. Social institutions. — The colonists were for the most part an energetic, thrifty, high-minded, simple-hearted people. There were considerable divergencies in the different sections of the country, corresponding to differences in race, occupation, and environment. Most of the population had been drawn from the middle and lower classes, and the extremes of the old world, whether of wealth or poverty, social rank or servile condition, were not reproduced in America. Society, removed from artificial trammels and placed in a new environment, tended to produce substantial equality. In New England, the population was remarkably homogeneous; persevering industry, in the face of an inhospitable environment, had secured for them general well-being, unmarked by either wealth or poverty. There was essential equality of condition, though the ministry and other professions constituted a virtual aristocracy of learning and birth. The population of the middle colonies was of all the sections the most heterogeneous, being composed of several nationalities. The occupations and general well-being were similar to those of New England, but the disposition of the people was not so stern and they were more given to social amusements. A great contrast to the democratic society of the other sections was found in the southern colonies, where the population was divided into clearly marked social classes, at the head of which stood the large plantation owners and at the foot the negro slaves. The character of southern agriculture and the existence of slavery dispersed the population and prevented the growth of towns, so that there was little intercourse. In general the life in the colonies was simple and often rude, with few extremes of poverty or wealth, little in the way of luxuries, but an assured subsistence as the reward of industry.

45. Scarcity of laborers in the colonies. — In contrast with the tasks to be performed in a new country, labor in the colonies was always a scarce commodity. To clear the land of trees, stumps, and stones, to cultivate the fields with the clumsy agricultural implements, to guard the growing crops against weeds and cattle, to cut roads through the forest, to build houses and barns, and perhaps to repel the attacks of hostile Indians — all these things called for unremitting toil of the severest kind. On the small farms of the North the proprietor cultivated his own land, with the help of his family, and "help" was sometimes employed on wages. But in the southern colonies where large plantations were the rule and where large staple crops like tobacco were raised, there was constant need of additional laborers. As other industries grew up beside agriculture this need was intensified, and various systems of bringing laborers to America were devised. Some of the immigrants who came to the colonies were without means or lacked the energy to engage in industry on their own account, and hired themselves out as free laborers, but their number was never very large. Moreover, the abundance of free land and the large returns to the cultivator tempted most men to become independent farmers on a small scale rather than remain hired laborers. The proportion of free laborers differed in the various colonies, but was always greatest in New England, where slavery had the slightest foothold, and where industry was the most diversified.

46. Labor co-operation. — Owing to the scarcity of laborers who could be hired to work for pay, it was a general practice in New England, and also in the middle colonies, for the colonists to exchange labor with one another. Was a house to be erected, a barn to be raised, or a ship built and launched, the settler called upon his neighbor to assist him in the larger operations that were beyond his strength or skill, or that called for the associated effort of several workers. The typical event that called for this co-operative system of labor was a house- or barn-raising; this was made a social occasion, the women

attending to provide a bountiful repast, while the men strove with one another in a spirit of emulation. It did not take long at such a time to erect the frame, rafters, and ridge-pole of a building. Later, the more usual method for a man who desired to build a house, was to agree with a carpenter or mason for so many days' work, the owner working with him under his direction.

While labor was still very scarce and even the voluntary co-operation of neighbors could not always be depended on, legislation provided for the impressment of labor for such necessary services as harvesting crops. In New England artificers and mechanics might be compelled by the constable to leave their crafts and assist in the harvest-fields of their neigbors. The securing of the food supply thus ranked with military protection. In the South there was a larger proportion of servants — under which terms were included not only hired laborers, but also apprentices and indentured servants — and consequently the exchange of labor between independent artisans or plantation owners was never so important.

47. Indented servants. — Of unfree laborers there were in the colonies two main classes: indented servants and slaves. The indented servants again were of two kinds — those whose servitude was voluntary and those whose servitude was involuntary. Voluntary servitude was based upon a free contract with a company or individual for a definite term of service in return for the payment of the servant's transportation and his maintenance during the period of service. The indented servants were free persons who emigrated for the purpose of improving their condition; at first, they came chiefly from England, but later large numbers were brought over from Ireland, Scotland, Wales, and Germany. Many of these bond servants sold themselves into servitude to the agents of planters, or to shipmasters or emigration brokers, or were enticed on board a departing ship by a so-called "spirit" or "crimp." This class of servants comprised the majority of those in servitude, and was confined chiefly to the

middle colonies; in Maryland there seems to have existed a variation in the so-called "free-willers." They were transported on the condition that they be allowed a certain number of days in which to dispose of themselves to the best advantage; failing in this their services were sold to pay for their passage.

In general the servants transported before 1650 were bound for long terms of from seven to ten years or more; after the settlement of New York, New Jersey, the Carolinas, and Pennsylvania, the demand was increased and the term of service was reduced to four years. While at first many of these laborers belonged to a low class, some of them came from the educated and even upper classes. At the end of their terms of service they generally became free laborers or independent proprietors and were merged in the white population of the colonies, becoming often highly respected citizens. In Pennsylvania and New Jersey redemptioners, that is indented servants whose term had expired, were granted fifty and seventy-five acres of land to cultivate in their own right.

48. Involuntary servitude. — The other class was composed principally of paupers, vagrants, "loose and disorderly persons," and criminals, who were sent to the colonies by royal order or court sentence, or later by judges under the English penal statutes. The transportation of these persons to America seems to have been dictated at first largely by motives of humanity. There were at this time three hundred crimes in the English calendar for which capital punishment was inflicted, and justices often mercifully substituted transportation for death; at the same time the need of men in the colonies afforded an excuse for evasion of the death penalty. During the eighteenth century, by virtue of acts of Parliament, a convict was permitted to have his sentence commuted, in case of the death penalty, to fourteen years' service, while a seven years' service might be substituted for whipping and branding. While most of the convicts thus sent over belonged to the criminal class, many of them were guilty of nothing

more serious than debt, and some were political prisoners who had engaged in some rebellious movement.

Acts were passed by the colonies designed to prevent the importation of convicts, and in 1671 an order was passed in England to put an end to the traffic. It seems not to have been observed, however, and in 1717 Parliament enacted a statute against the protests of the Virginia merchants providing for the transportation of convicts to America. The provinces of Virginia and Maryland received most of these convicts, although they were not unknown elsewhere. Many of the planters preferred their services to those of the bond servants, as their terms were longer and their rights fewer.

It is impossible to state the proportion of laborers belonging to the two classes, but the indented servants were undoubtedly in the majority. Fifteen hundred a year is the estimate of Berkeley for Virginia in 1664; seventeen years later, it was stated that ten thousand persons were annually spirited away from Great Britain by kidnappers. In this same year there were in Virginia six thousand servants as against two thousand slaves. Commons estimates that probably one half of all the immigrants of the colonial period landed as indentured servants.

49. Treatment of servants. — The treatment of servants was as various as the character of the masters. At first, a sort of good fellowship seems to have existed between masters and men, but as the numbers became greater a mass of legislation grew up to regulate their relations. The general condition of the bond servants was certainly a hard one, as is shown by the character of the laws to protect them. No servant could be sold out of the province in which he agreed to serve, without his consent; he must be furnished with sufficient and wholesome food, clothing, and lodging — it appeared that the food allowed was often a coarse diet of Indian meal and water sweetened with molasses, while lodging and clothing were poor and insufficient. Finally, the law provided that if a servant fell ill during his service, he must be cared for; the

sick servant was often neglected, lest the doctor's charges should exceed the value of his remaining service. The servant was also protected against unjust cruelty and bodily maiming; it must be remembered, however, that this was an age of flogging, and corporal punishment was meted out to soldiers and sailors, criminals, and children as well as servants.

On the other hand, the interests of the master who had invested his capital in servants were even more carefully protected. The great danger to which he was exposed was the loss of runaway servants, who fled to escape service or were tempted away with higher wages by rival employers. Both the runaway and those who harbored him were punished by severe penalties.

50. Advantages of white servitude. — In the early colonial days when labor conditions were so unsettled and labor scarce, certain advantages doubtless existed in a system of servitude for white servants. In the first place, it permitted the organization of labor under intelligent direction, for definite purposes. The long terms of service with contract labor introduced an element of certainty, which was very important for those undertaking large and rather hazardous enterprises in a new country. It had generally the effect of an industrial or agricultural apprenticeship, and provided for the development of a class of small independent proprietors. Until well into the eighteenth century, when it was gradually supplanted by the system of slavery, it furnished the larger part of the labor supply of Virginia, Maryland, and of Pennsylvania. On the other hand, it must be said that the moral influence of the system was bad; the immorality of the women servants was a subject of constant complaint and legislation, while the system of kidnapping and sale of the labor of young boys, as well as the abuse of power by harsh masters, had a harmful effect.

51. The early slave-trade. — More important and far-reaching in its effects than the institution of white servitude was the introduction of negro slavery into North America.

Slavery and the slave-trade have existed ever since a settled life made the compulsory service of captives more desirable than their extermination. The gradual progress of civilization had, however, led to a diminution of the enslavement of Christian peoples, and would doubtless soon have completely abolished it had not America been discovered. Negro slavery had long existed in Africa, and for fifty years before the discovery of America a regular traffic in slaves had been carried on by the Portuguese between Europe and Africa. There was, however, no place for slaves in Europe, except in the domestic service of the wealthy, but in the new world there was opened a new opportunity for their disposal and a new field for their labor.

52. Introduction of slavery into America. — When Spanish slave-holders emigrated to the West Indies, they brought their negro slaves with them, and while at first these were limited to those instructed in the Christian religion, the development of sugar growing and the need of labor soon broke down this restriction. The native Indians, too, were enslaved, but proved ill adapted to the hard labors required by their severe taskmasters. At first the slave-trade was carried on by the Portuguese and Spanish, but later the Dutch and English (1562) engaged in the traffic. Thus for a century prior to the settlement of the Jamestown colony slavery had existed in the West Indies and a regular traffic in slaves had developed between the islands of North America and Africa. It was very naturally introduced into the English colonies on the continent from the West Indies; later a direct traffic with Africa sprang up.

In 1619 a Dutch privateer landed twenty negroes at Jamestown; the number increased but slowly, however, and in 1670 there were only two thousand slaves in Virginia. Beginning with the settlement of Charleston, South Carolina, in this year, and the introduction soon afterwards of rice culture, an economic basis was furnished for slavery. At first most of the slaves were supplied by the Royal African Company of

England, but after 1688 the trade was thrown open, and many New England merchants engaged in the traffic. The first ship-load brought into Massachusetts was indeed returned at public expense, but as the West Indian trade increased in volume and importance the early scruples were overcome by the profits secured. During the eighteenth century a three-cornered trade was developed by New England, by means of which molasses was brought from the West Indies to New England, where it was manufactured into rum; this was taken to Africa and exchanged for slaves, who were transported to the West Indies or the southern colonies, where they were sold. The trip between Africa and the West Indies was called the "middle passage," and was attended by frightful mortality and suffering of the slaves.

It is difficult to ascertain even approximately the number of negroes whom the slave-traders carried off from Africa to the new world. At the beginning of the eighteenth century the total number carried each year to all the colonies by British vessels was estimated at 25,000; from 1713 to 1753 it ranged between 15,000 and 20,000. In 1771 almost two hundred British vessels were engaged in the traffic, carrying annually 47,000 slaves from Africa. The number of Africans shipped by all nations was estimated at 97,000 in 1768. Only a small part of these found their way to the thirteen English colonies.

53. Distribution of slavery. — Slavery existed in all the colonies, but to a very different degree in different sections. In New England it had obtained the smallest foothold and was disappearing, not so much because of a moral sentiment against it as because, owing to the varied industrial development of that section, it was economically unprofitable. The Quakers of Pennsylvania were opposed to slavery, but in New York and New Jersey from eight to ten per cent. of the population was composed of slaves, who were treated with great leniency. South of Mason and Dixon's line the situation was quite different. Of the 400,000 slaves in the colonies

in 1760, three fourths lived in the South; the proportion in the different colonies varied from thirty per cent. of the population in Maryland and forty per cent. in Virginia, to sixty per cent. in South Carolina.

In the tobacco colonies the treatment of the slaves was more patriarchal in character; but in the rice fields of South Carolina the worst excesses were found. Here the pestilential heat of the swamps, which drove the planters for relief to the seashore, proved fatal to the strongest negroes, who were forced to work at the severest labor under brutal overseers. It was found to be more profitable to work the slaves until they were worn out and then get fresh supplies rather than to spare them; the new slaves were usually obtained from the West Indies or direct from Africa, and were consequently less tractable than the American-born negroes of Virginia. The constant fear of uprisings, owing to the numerical superiority of the slaves, and their propensity to run away, led to the harshest legislation against them. Herded together in gangs, with few women and no home life, they showed slavery at its worst.

54. The attitude towards slavery. — The colonists were at first opposed to the introduction of slavery and various acts were passed, in Massachusetts and Virginia, in Providence and Georgia, forbidding or restricting it. Among the English, however, by whom the slave-trade had already long been carried on with the West Indies, there were no such scruples. About 1663 a British Committee on Foreign Plantations declared that "black slaves are the most useful appurtenances of a plantation." Seventy years later the Lord Commissioners of Trade stated that "the colonies could not possibly subsist" without an adequate supply of slaves. Laws passed in the colonies to restrict the slave-trade were generally disallowed by the crown, and royal governors were warned that the colonists would not be permitted to "discourage a traffic so beneficial to the nation." The first effect of the introduction of servile labor indeed was to aid in the rapid clearing of

the land and the production of new wealth. Without the system of slavery and the sister institution of white servitude, it may be said that the development of the South would have been greatly retarded and very different in kind. Gradually, as it was seen to be profitable, the objections of the colonists died away, and there was little scruple about owning slaves or engaging in the slave-trade.

55. The organization of industry. — Thus far the kinds of laborers have been described, but the character and organization of industry must also be mentioned. Most of the labor was agricultural, since this was the principal occupation, but as towns grew and increased in size, industry began to be separated from agriculture and industrial workers to become more important. Industry was for the most part in the custom-order stage during the early part of the colonial period; the home of the worker was the workshop and here goods were produced upon order from the customer. The mechanic was both producer and merchant. Gradually, as the population increased and the market grew in size, the master workman gathered journeymen about him. He also, in addition to custom or " bespoke " work, began to produce cheaper goods for sale without waiting for orders. This retail order stage had been reached by the time of the Revolution.

In addition to these stationary workers there were also itinerant workers, especially in those industries which required only hand tools and skill, like the itinerant shoemaker or tailor. The itinerant worker went from house to house, where he worked up the raw material belonging to his customers in return for board, lodging, and a small wage. In those industries, however, where any considerable capital was required, as in blacksmithing, weaving, baking, etc., the worker set up his own shop and the customer came to him. With the growth of population and of better means of transportation, the itinerant mechanic tended to become a stationary worker.

56. Regulation of industry. — As long as goods were pro-

duced only on order, as "bespoke" work, the master workman found it to his interest to turn out only good wares in order to hold his customers. But when custom work began to be displaced by "shop work," or the making of goods for sale in the general market without waiting for orders, then the danger arose that cheap and poorly made wares would be placed on the market. To guard against this, inspectors, supervisors, and other similar officers were appointed in various crafts to insure the quality of the goods produced. So, too, when master workmen began to hire journeymen, disputes over wages arose. But these were less important than the regulations of prices and quantity, which were designed to protect the consumer. Perhaps the most general colonial regulation, which covered price, wage, quality and weight, was the "assize of bread." Thus Massachusetts, in 1696, provided that the weight of the penny loaf should vary according to a fixed scale as the price of wheat moved up or down, and although the bakers frequently complained that the assize did not permit them to earn a living wage, regulation rather than competition was held to be necessary to protect the interests of the general public. This was in harmony with the mercantilistic ideas of that period.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER IV

The labor problem of the colonies was how to get the necessary supply of laborers rather than how to determine the rates of wages or conditions of employment. Every standing tree waiting to be converted into lumber or other products, every untilled field, every natural resource which might be exploited, constituted a demand for labor. How to meet this demand was the paramount problem.

1. What conclusions did Malthus reach from a study of the growth of population in the American colonies? [T. R. Malthus, The Principle of Population, chap. 6.]

2. Is the population increasing as rapidly in the United States to-day as in colonial times? Is there any difference in the rate of increase in different parts of the country?

3. What is said in the Constitution about involuntary servitude? Was this aimed against the colonial practices?

4. It has been said that the institution of human slavery was the greatest advance ever made in civilization. Criticise this statement.

5. What nation do you think was responsible for slavery in the colonies? [P. A. Bruce, II, chap. 11; W. B. Weeden, II, chap. 12.]

6. What was the "middle passage" in the slave-trade? Why so called? Describe its horrors. [J. B. McMaster, II, 15; Weeden, II, chap. 12; W. J. Abbot, chap. 3; John R. Spears, The American Slave Trade.]

7. Did slavery spread rapidly or widely in the colonies?

8. Does slavery exist anywhere in the world to-day? [Encyc. Brit., art. Slavery.]

9. Is slavery necessary? Is it necessary that there should be domestic servants? Would society be better or worse off if there were none? [A. E. F. Schaffle, Quintessence of Socialism, 111–112.]

10. Was there a considerable number of domestic servants in the colonies? Why? [L. M. Salmon, Domestic Service, chap. 3.]

11. What is "coolie labor," and where is it used? Is this any more excusable than slavery?

12. Were there any tramps in the colonies? Why are there any to-day in the United States? [A. G. Warner, American Charities, chap. 8.]

13. What objections are there to sending criminals to penal colonies? [F. H. Wines, Punishment and Reformation, 162–171; E. F. DuCane, The Punishment and Prevention of Crime, chap. 5.]

14. Was the practice of "binding out" the children placed in poor-houses like that of indenting servants?

15. Has the lot of the servant improved in the last two hundred years? Is it better here than in Europe? Why?

16. Describe the life in some colonial college before the Revolution. [A. B. Hart, Hist. told by Contemp., II, 255–7, 266-275.]

17. Was there any considerable development of literature or art in the colonies? Explain your answer. [J. Bristed, Amer. and Her Resources, chap. 6; E. B. Greene, Provincial America, chap. 18; W. Wilson, Hist. of Amer. People, III, 83.]

18. Describe the social life, diet, dress, and domestic economy of the early colonists. [H. C. Lodge, English Col. in Amer., see Index; A. M. Earle, Home Life in Col. Days; H. E. Scudder, Men and Manners; A. B. Hart, Hist. told by Contemp., II, chap. 12.]

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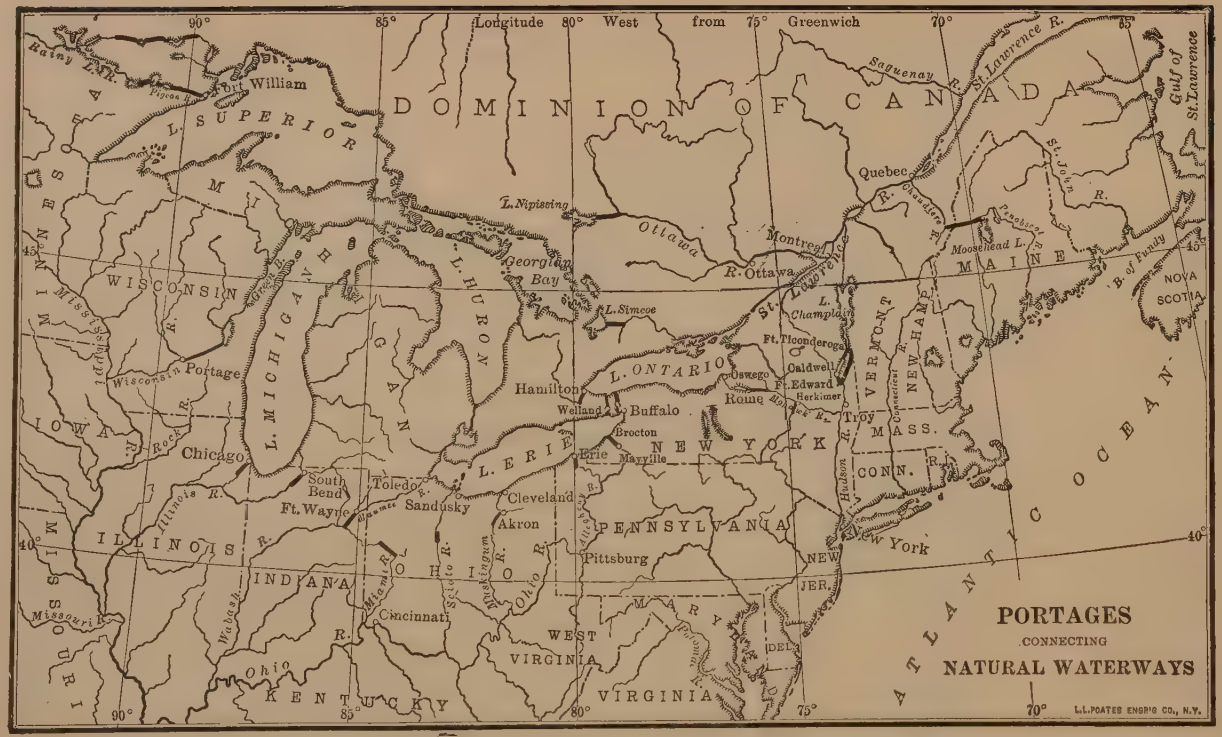
CHAPTER V

TRADE AND EXCHANGE

57. River and coastwise traffic. — During nearly all the colonial period the majority of the colonists lived within reach of navigable water; separated by dense forests and tribes of hostile Indians, they found this the safest and easiest highway. In New England the fall line is comparatively near the coast, and communication could not be carried far up stream, except on the Connecticut River, which is navigable as far as Hartford. But the lack of rivers was compensated by the presence of Long Island Sound, whose long stretch of sheltered water greatly favored the coastwise trade. New York had the finest navigable river in the Hudson, which was navigable for ocean vessels as far north as Albany, one hundred and fifty miles from its mouth. Farther south the broad bays and deep rivers brought even the inland plantations within easy reach of seafaring vessels.

THE FALL LINE OF RIVERS
Towns sprang up at the fall line of most of the rivers, owing to the presence there of water power and to the interruption to navigation at that point.

Rivers were the only highways into the interior, and when the trapper and trader pushed beyond the mountains they



PORTAGES CONNECTING NATURAL WATERWAYS

Along the line of the Indian portages the hunters and traders first penetrated into the wilderness. Later towns sprang up at these points.

followed the river courses. With the light birch-bark canoe it was possible to penetrate far inland on the interior streams. To pass the mountains, however, it was necessary to pass from the rivers flowing into the Atlantic to those emptying into the Mississippi. The portage thus became an object of the greatest interest and value to the early colonist and fur trader. Forts were early established on the important portages, which were always the lowest and easiest ways over the watersheds. More recently roads and railways have followed the same lines, and early Indian portages are now marked in many places by populous cities.

For more than a century travel and transportation in America were almost confined to water. Most of the trade between the colonies was carried on by sea. Convenient harbors were numerous, and sailing vessels plied between New England towns and those of the middle and southern colonies, but the coastwise trade was never very large. All the important cities of colonial times were seaports, as Boston, Newport, New York, Philadelphia, Baltimore, Charleston, and Savannah. Although the excellence of the water communication undoubtedly delayed the building of improved roads, it must be regarded as a great economic blessing to the struggling colonists, as it saved them much wearisome labor.

58. Colonial roads. — As the population pushed inland, other means of communication than those by water became necessary, and Indian trails were used, being generally widened into bridle paths and later into roads for the use of wagons. Up to the time of the Revolution the roads were very poor, being constructed without system by the different localties; although in Massachusetts the General Court in 1639 had ordered each town to construct a highway to connect with that of the adjoining town. The colonial road was the ordinary earth road, deep with dust in summer and with mud a foot or more during the thaws of winter and spring. Wagons were a rarity, but sledges were used or journeys were made on horseback. In the North it was possible to travel with

comfort or to go long distances by land only in the winter, when the snow made sleighing possible. The cost of transportation was enormous, and usually prohibitive beyond one hundred or one hundred and fifty miles, except for articles of the first necessity, as salt and iron, or of small bulk, as tea; the charge for hauling a cord of wood twenty miles was $3, for hauling a barrel of flour one hundred and fifty miles it was $5.

STAGE COACH

The stage coach did not reach its highest development until after the roads had been improved and turnpikes built. The first stage coach which ran directly from New York to Philadelphia — "the flying machine" — was started only a few years before the Revolution.

Under such circumstances passenger traffic was infrequent and men lived and died without traveling twenty miles from the place of their residence. Communities in neighboring counties were quite isolated from each other. Travel was not only uncomfortable and expensive, it was positively dangerous as well. Few bridges existed in the colonies, and the shallower rivers had to be forded, while the broader or deeper ones were crossed by means of ferries. It was stated that in Pennsylvania at the end of the colonial period it was not uncommon for men to make their wills before starting to a State convention. Travel by stage coach did not become important until the beginning of the nineteenth century; the first stage between New York and Philadelphia was not established until 1756, and the trip took three days for a distance of ninety miles.

59. Domestic Commerce. — The first trade in the colonies

was carried on, not among the colonists themselves, but with the Indians. From them the settlers obtained furs and skins in exchange for blankets, shirts, beads and trinkets, and other manufactured articles. The colonists were forbidden by the British government to furnish the Indians with firearms, powder, or rum, but the Indian traders refused to be bound by legislation. In the Mohawk valley a musket could be bartered for twenty beaver skins.

As the fishing industry of New England developed a steady exchange took place of dried and salt cod for corn, salt pork, and other supplies. Fish, meat, lumber, and such manufactured goods as shoes and woolens were sent to the southern colonies and there exchanged for tobacco, hides, tar and other naval stores. A considerable coastwise trade existed, especially between the northern and southern colonies, based upon climatic differences. Neighboring communities, however, whose products were similar, did not find it profitable to trade. Division of occupations or of labor had not yet proceeded far enough to provide materials of commerce on any considerable scale.

60. Foreign commerce. — Far more important during the colonial period than the inland or coasting trade was the foreign commerce of the colonies. The Atlantic Ocean was the great thoroughfare of commerce and served as an avenue of approach rather than as a barrier to foreign countries. The surplus products of the colonists, such as fish or tobacco or lumber, were of value only if they could be exchanged for other commodities not produced in the colonies. Colonial products were at the same time in great demand in Europe. The foreign trade of the colonies consequently kept expanding steadily until, by the end of the colonial period, the total exports from all the colonies amounted to $20,000,000. So insignificant was the world's trade at that time that this comprised one seventh of the total commerce of Great Britain, and was considered sufficiently important for England to reserve it to herself. The importance of foreign commerce differed

greatly in the different colonies. The absence of a staple agricultural export and the profitableness of the fisheries and of ship-building early made New Englanders the leading carriers of colonial commerce. On the other hand, while the tobacco trade of the southern colonies gave employment to some 4000 seamen, few of them lived in that section. Until about 1750 Boston was the most important seaport, sending out five or six hundred vessels annually in the foreign trade alone. Newport ranked second and New York third, with only half as many ships as Boston. About the middle of the eighteenth century, Philadelphia secured the leading place as the chief port of North America, with an export trade of over $3,500,000 a year and a total foreign commerce of over $5,000,000. Her situation made her the principal market for the meat and flour of the interior country.

61. Exports and imports. — About two thirds of the trade was carried on with Great Britain and her dominions, while France and Spain also furnished markets for colonial produce. Fish, lumber, furs, and tobacco were the leading exports in the seventeenth century, to which were added in the eighteenth such articles as whale oil and whalebone, meat, rum, rice, and naval stores. In return the colonists received woolen and linen goods from England, iron and wool from Spain, spices from the Mediterranean countries, and wine and fruit from Madeira and the Canary Islands. Of especial importance was the trade with the West Indies. Here was found a convenient and profitable market for the flour, fish, and lumber products of New England, which were excluded from England itself, and from these islands the colonists obtained sugar, molasses, dyestuffs, and other products of a tropical climate. The molasses formed the basis in Newport and Boston of a profitable rum-distilling industry, the product of which was shipped to Africa and bartered for slaves, who in turn were taken to the West Indies in pay for more molasses. This constituted the lucrative "three-cornered" trade, by means of which the colonists were enabled to buy so largely of English manu-

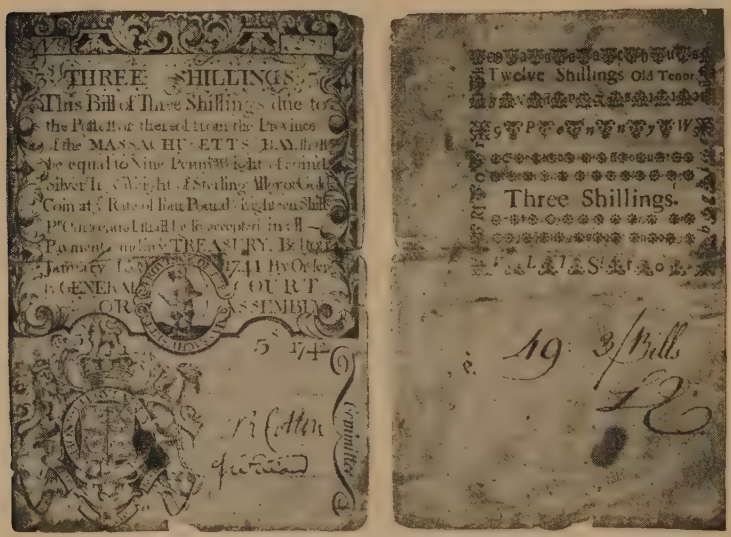
factures. Such trade was typical of the roundabout voyages, which sometimes would last several years while the captain carried the commodities of one section to the market where he thought he could dispose of them to the best advantage; if he took other goods in exchange he had to dispose of them in turn.

62. Agencies of exchange. — All exchange during the colonial period was slow and cumbrous. The important institution of trade was the general country store, which collected the surplus products of the colonists and gave them in exchange the wares imported from abroad. Direct barter was the usual form of exchange, as money was scarce, and the storekeeper acted as the agent in effecting these exchanges. Markets were generally to be found in the cities, to which the farmers brought their country produce twice a week. Fairs were also held once or twice a year, at which foreign merchandise was sold as well as local wares.

As might be expected, the postal facilities in the colonies were of the most primitive character; letters and packages were generally carried by private messengers at high rates. Postage rates for a single letter ranged from eight to twenty-five cents, according to the distance, and the charges were paid by the recipient. Mails were both irregular and infrequent. An important advance was made when a general postal system was inaugurated by the second Continental Congress on July 26, 1775. Benjamin Franklin was placed at the head, and a line of posts established from Falmouth in Rhode Island to Savannah, Georgia. This was gradually extended during the next few years and in 1789 was placed under the control of the postmaster general.

63. Colonial currency. — There was very little metallic money in the colonies, and what little was brought over by incoming settlers was speedily sent back to pay for more valuable forms of capital. No gold or silver mines existed in the colonies, and consequently metallic money could be obtained only by trade from other countries. But there were

several reasons why this was a difficult thing to do at this time: in the first place the colonists were poor and at best would have had but little money. They were situated in a new country, to develop which they needed other forms of capital, such as tools, plows, household utensils, and manufactured



MASSACHUSETTS COLONIAL CURRENCY

Massachusetts, together with the other colonies, issued bills of credit for the double purpose of providing a medium of exchange and of replenishing an empty treasury without the necessity of resorting to taxation. There were large over-issues and consequent depreciations, and in 1742 a new issue was authorized, called "new tenor" bills, in which the "old tenor" bills were to be redeemed at the rate of four to one. This is indicated on the reverse of the bill shown. After a mad career of paper money issues, Massachusetts finally resumed specie payments in 1750 and redeemed the outstanding bills in silver.

goods, more than they did money, which is only a form of capital or a tool of exchange. And finally the prevailing mercantilist notions on the balance of trade made other nations disinclined to pay for colonial products in specie. Moreover, what little metallic money remained in the colonies

circulated very slowly, and the sparseness of settlement and cumbrousness of exchange made it therefore less effective than the same amount would be to-day. Under these circumstances the colonists proceeded to use substitutes, and in this endeavor to find a cheap and satisfactory substitute for the expensive precious metals is to be found the keynote of colonial currency questions.

Resort was first had to the use of various commodities, which were often given the legal tender quality. Thus tobacco in Virginia and Maryland, rice and cotton in the Carolinas and Georgia, corn, cattle, peltry, and beaver skins in the northern colonies — in each case the staple commodity of the community was selected, for which there existed a ready market and a general demand. In New England the colonists found wampum, strings of cowrie shells, already is use among the Indians, and availed themselves of this, especially in the fur trade with the Indians, for half a century. Debts were settled, taxes collected, and church tithes paid in these articles. All of these commodity moneys were subject to serious disadvantages, such as fluctuation and depreciation in value, and the loss involved in storing or hoarding them. Their unsatisfactory character consequently led to an early resort to other methods.

64. Paper money. — To meet the need of a larger circulating medium for colonial exchanges paper money was early issued by the colonists. The first issue was made by Massachusetts in 1690, to pay the soldiers who had returned unsuccessful and penniless from a military expedition against the French in Quebec. This was not only the origin of paper money in America, but also in the British Empire, and almost in the Christian world. At first the notes depreciated, but were soon brought to par by being made receivable for taxes at five per cent. advance over coin, and the promise of redemption in twelve months. This method of anticipating taxes was so successful that a second emission was made by Massachusetts in 1709, and this example was followed by South Carolina,

Rhode Island, Pennsylvania, and finally by all the colonies except North Carolina. The experience was almost everywhere the same: over-issue, delay and postponement of redemption, depreciation, and finally in some cases repudiation. And yet with all its evils, the practice was persisted in during the colonial period, and repeated again by the Continental Congress because, bad as it was, it seemed cheaper than gold or silver, and was better than nothing. Even so shrewd and successful business men as Benjamin Franklin and John Dickinson advocated the issue of paper money by the colonies as a matter of economic policy.

65. Banks. — Commercial banking as we know it to-day is a comparatively recent development and was unknown in the seventeenth or eighteenth century. The banks which were established in the colonies have been described by one writer as "a batch of paper money." Perhaps the best known colonial bank, which was sufficiently typical to serve as an illustration of all, was the Land Bank of Massachusetts. When the British government in 1739 instructed the governor of Massachusetts to put a stop to the issue of paper money, some of the people feared that there would not be enough money to carry on their business and they accordingly organized a so-called Land Bank which was to issue bank notes upon security of land or commodities. This was opposed by the merchants of Boston and others, who finally invoked the authority of Parliament to put an end to it. In 1720 Parliament had passed the "Bubble Act," directed against speculative and fraudulent companies, and now, in 1741, they declared that the provisions of this act extended to the colonies.

As the power of coining money, and hence of issuing paper money, was a royal prerogative, these acts of the colonists were always regarded with jealousy by the crown. In 1751 Parliament forbade the issue of bills of credit in New England, and finally, in 1764, it extended this prohibition to the remaining colonies. The quarrels over this subject between colonial legislatures and royal governors, who, acting under

royal instructions, usually disallowed paper money issues, later formed one of the important though little emphasized causes of disaffection between the colonies and the mother country.

66. Bills of exchange. — Commodity money or "country pay" might serve in local transactions and paper money in those carried on within the country, but the only acceptable money in foreign trade is gold or silver. Since there was a scarcity of metallic money in the colonies, they had to resort to substitutes in this field also. The difficulty was solved by the use of bills of exchange. For instance a New England trader might sell a cargo of salt fish or of lumber to a West India sugar planter, and receive in payment a bill of exchange or order drawn upon a merchant in London to whom the planter had sold his sugar, directing the merchant to pay a certain sum of money. The trader could then use this bill of exchange as a means of payment with which to buy manufactured goods in England, or he could pass it on to some other merchant in the colonies. A large part of the overseas trade of the colonies was carried on through the use of bills of exchange.

67. Summary: Material progress. — The colonial period shows a rapid development towards economic independence on the part of the inhabitants of the different colonies, and an equally well-marked tendency towards sectional isolation. Bringing with them the existing tools and institutions of government of the old world, the colonists were able to wrest a livelihood from the rich resources of their new environment from the beginning. The aborigines, who had never passed beyond the stage of barbarism, were compelled to yield step by step to the superior culture and westward march of the pioneer. The combination of wonderful natural resources and of high qualities in the men who essayed the task of subjugating the new world resulted in steady progress.

Naturally, in a new country, the extractive industries were first developed. Agriculture was the most important single

industry, and under the new conditions it grew along original lines, different from those which had developed under the feudal institutions of Europe. Other industries too sprang up in response to the economic needs of the colonists or the artificial regulations of the mother country. In general the typical colonial community was comparatively isolated and economically self-sufficient, and had little intercourse with the rest of the world. By the middle of the eighteenth century great progress had been made towards settling and cultivating the territory on the Atlantic seaboard, but the American colonies were still in a primitive agricultural stage; such manufactures as were needed were generally made within the home.

68. Summary: Social development. — Such conditions fostered the growth of free institutions, and the constant struggle with nature developed strength of character and of body. In spite of certain social distinctions which the colonists brought over with them from an older civilization, they were forced into a democratic mold by the essential equality of conditions in a primitive society. Equality and liberty were the ideals of the typical American colonist, while the abundance of free land led him to regard private property in land as hardly less sacred than his other rights. At one point, however, these ideals yielded to necessity — or greed. There was great need in all the colonies of labor, and in order to secure the desired supply slavery was early introduced. New England and the South shared in the gains from the nefarious traffic; for a while their interests seemed identical. Subsequently, the diverse economic, social, and political ideals which grew out of the contrasting labor systems of North and South led to complete estrangement of these sections. For the time being, however, sectional differences were harmonized in a common animosity against the mother country, whose restrictive colonial policy began now to hinder the natural economic development of the colonies. The attempt on the part of England to enforce these restrictions led naturally to resistance from the colonists, and resulted inevitably in revolution.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER V

The transportation problem of a new country is always a difficult one. To build good roads and bridges or canals requires much time and the investment of large amounts of capital. But the transportation needs of the colonists were immediate, if they were to market their products.

The currency problem was not dissimilar. Gold and silver are an expensive form of money, and the problem of the colonists was how to carry on their exchanges with the least expensive media.

1. Shaler says the Appalachian Mountains presented to the early colonists, "a barrier as impassable as the Alps." What effect did this have on the settlement of the colonies, on trade, and on westward expansion? [E. C. Semple, Amer. Hist. and its Geographic Conditions, chap. 3.]

2. Were there any considerable settlements during the colonial period that were not accessible by water? Where?

3. Do you know of any communities in the United States to-day which are without railroads or trolley lines? To what extent does exchange of goods or social intercourse take place?

4. How could one go by water inland (with portages) from the Atlantic to the Gulf of Mexico? to the Pacific? [L. Farrand, Basis of Amer. Hist., chap 2.]

5. Did the comparative isolation of the colonies exert any effect on the growth of ideas of political independence?

6. Why were the colonists so eager to issue paper money? Why did the English government object? [H. White, Money and Banking, 103–114; C. J. Bullock. Mon. Hist. of U. S., part 1, chaps. 3, 4; D. R. Dewey, Fin. Hist. of U. S., 18–30; W. B. Weeden, II, 473–491.]

7. Give the history of the Massachusetts "pine-tree" shilling. [A. McF. Davis, Currency and Banking in Mass.; E. Eggleston, Commerce in the Colonies.]

8. Could a country dispense more easily with money or with roads?

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PART II

STRUGGLE FOR COMMERCIAL AND ECONOMIC INDEPENDENCE (1763–1808)

CHAPTER VI

ENGLISH COLONIAL THEORY AND POLICY

69. Economic conditions in Europe during the sixteenth and seventeenth centuries. — The discovery of the new world and a shorter route to India had exercised a revolutionary effect upon the countries of Europe. The flood of silver which followed the opening of the South American mines had assisted in breaking up the feudal system of payment in kind and in substituting a money economy. Throughout the sixteenth and seventeenth centuries trade and communication were expanding. Powerful states were forming, with paid armies, and to secure the needed revenues to pay them it became necessary to develop taxation. As manufactures in the towns yielded greater revenues than agriculture, they were selected for especial encouragement by the state. Further, it was evident that only as the state was powerful could it help its citizens in their competition with citizens of other countries, or itself carry on successfully commercial struggles with rival nations. Accordingly a definite economic policy was formulated, of which the government was the head. The aim was so to regulate industry that the state should be made strong and powerful. The set of measures by which this national power was to be developed is called the mercantile system, and it was under the influence of this system that not only England, but all European countries, regulated their trade and commerce during this period.

70. The mercantile system. — The aims of the mercantile system in England have been classified by Warner under four main heads: (1) the policy of encouraging native shipping by navigation acts, in order that the realm might have plenty of ships and sailors from which an efficient navy could be formed; (2) the policy of protecting and helping native grain growers, in order that England should be independent of food from outside, and should always be able to feed the population from her own land; (3) the policy of protecting home industries, and of planting new ones to give employment to native artisans; and finally, (4) the policy of amassing and keeping in the country a large amount of money.

71. Protection to shipping. — As early as the reign of Richard II (1377–1399) it was enacted that "none of the King's liege people should ship any merchandise out of or into the realm, except in the ships of the king's ligeance, on pain of forfeiture." Under Henry VII (1485–1509) and Elizabeth (1558–1603) similar laws were passed. The best known legislation for this purpose was the famous navigation acts, which were passed in 1651 under Cromwell, and made more severe in 1660. These prohibited the carrying of goods to and from England in any but British built and manned vessels.

But, to develop the English merchant marine, it was necessary not merely to secure a monopoly of the carrying-trade, but also to train sailors, encourage ship-building, and provide an adequate supply of naval materials. We find, accordingly, legislation directed to each of these ends. Since fishermen made good sailors, every encouragement was given to their industry. As the simplest way was to increase the demand for fish, an act was passed in 1548, "in order that the Fishers may be set on work," directing that fish must be eaten two days a week throughout the year as well as during Lent. Later, bounties were given. Ship-building was encouraged rather indirectly by clearing the sea of pirates and making the ocean a safer place for travel. Finally, strong efforts were made to secure the production of naval stores in the colonies,

especially flax, hemp, tar, and pitch, though never very successfully.

72. Protection to agriculture and industry. — The policy of making England strong by building up a powerful navy found its application to agriculture and manufacturing in an effort to make the country economically self-sufficient. In respect to agriculture, it was desired to raise enough food in England to support the population, and not less to develop a sturdy yeomanry who should serve as soldiers in time of war. Accordingly, the enclosure of arable land was restricted and the import of gain forbidden or limited. To encourage home manufacturing industries and provide employment for the people, the importation of various foreign wares was forbidden, as woolens, silks, iron, leather goods, hats, and many smaller articles; the exportation of raw materials was also prohibited. The underlying principle was the same in all these provisions — to make England and the English people strong at the expense of other nations.

73. Money and the balance of trade. — But the mercantilist doctrines found their fullest expression in the legislation with regard to money; this was the keynote of the whole policy. The doctrine was a simple one: money is the most general and universally desired form of wealth; the nation, like the individual, is richest which has the largest store of gold and silver; riches bring power, and it is therefore necessary for a successful nation to obtain a bountiful supply of money. Thus Spain, which controlled the silver mines of America, was one of the most powerful nations of Europe. But since England possessed no mines, she could get money only in exchange for goods; in order to do this, she must export as many commodities as possible and import as few as possible, except raw materials, taking the difference in money. This difference was called the balance of trade, and was said to be favorable when an excess of exports over imports brought in money; unfavorable, when the reverse was the case. In order to maintain a favorable balance of trade the govern-

ment must resort to many expedients — high duties on imports or their prohibition, bounties on the exports of home productions, and restrictions upon the exportation of the precious metals.

74. English colonial policy. — The doctrines of the mercantile system, applied to the colonies, resulted in a policy by which their resources were used to make England powerful. To build up English shipping, agriculture, and manufactures, and to secure a favorable balance of trade, was the object of English legislation during the whole of the colonial period. In this policy the colonies were regarded as feeders merely, supplying the raw materials for English manufactures and a market for the finished goods, while a large exchange of commodities between the colonies and the mother country built up a profitable carrying-trade for British ships. Accordingly the manufacture in the colonies of such goods as could be made in and exported from England was forbidden. Such colonial products, moreover, as were desired at home, the colonies were forbidden to send anywhere except to England; while other goods, which would compete with English interests, were prohibited from being sent to England, although they could be exported to certain other countries. The first group, which was "enumerated" in the law, consisted of commodities not produced at all in England, as coffee, indigo, tobacco, beaver skins, dyes, etc., or of products whose home supply was insufficient, as naval stores, masts, tar, pitch, pig iron, pot and pearl ashes, etc. The second group, of "non-enumerated" products, consisted of such articles as grain, salt provisions, fish, and rum.

The general principle then was that the colonies should be used for the benefit of the mother country, and is well expressed in Lord Sheffield's famous observation that "the only use and advantage of American colonies, or West-India Islands, is the monopoly of their consumption and the carriage of their produce." There was indeed a certain justification for this position as the colonies were, at least during the

eighteenth century, a constant expense to England, and it seemed only fair, therefore, for the mother country to use their resources for her profit. The attitude of England in this regard was considered by Adam Smith "less illiberal" than that of other nations. No country allowed foreigners to carry on the trade with its colonies; such was the policy of Spain, Holland, and France, as well as England.

75. Early commercial freedom of the colonies. — When the first settlements were made in America they were granted complete exemption from trade restrictions. The Virginia, Maryland, and Plymouth companies all received various concessions, as freedom from duties, use of their own revenues, etc., designed to encourage the colonization and development of the country. According to the first charter granted the Jamestown colony their trade was open to any foreigner upon payment of a small duty. In 1624, however, James I dissolved the company and thereafter tobacco was exported only to England. The growing trade with Holland was thus nipped in the bud, and the possible revenues from duties on imports into England were reserved for the crown. In general, there was practical freedom of trade on the part of the colonies up to the time of the Navigation Ordinance of 1651.

76. The Navigation Ordinance of 1651. — This famous act, passed under Cromwell, was directed against the Dutch, who at this time were the carriers of the world's commerce. It was desired both to cripple Holland and to build up English shipping by confining English trade to English vessels. The policy was successful, and England soon supplanted Holland as the foremost maritime power, as the result of this and other causes. The act providing that all products "of the growth, production, or manufacture of Asia, Africa, or America, or of any part thereof, . . . as well of the English plantations as others," could be imported into England or its territories only in English built and English manned vessels. The word "English" included also the colonists. This act, therefore, aimed to give a monopoly of the traffic or

carrying trade between England or the colonies and other countries to British (*i. e.*, English and colonial) shipowners, for the purpose of building up British shipping.

77. Effect of the Navigation Act. — In 1650 the chief interests of the colonies were agricultural; ship-building, fishing, and fur-trading being practically the only other industries. Cromwell's Navigation Act, which required the use of English or colonial ships in the carrying-trade, gave a distinct impetus to ship-building and shipping. Ship-building soon became the most important industry in New England outside of agriculture. Indeed, colonial vessels soon began to be sold in England and to displace English vessels in the carrying-trade; by 1775 one third of the ships engaged in British trade were colonial-built. The only complaints as to the effects of these provisions came from Virginia tobacco planters, and they soon died away.

78. Regulation of colonial commerce. — The act of 1660 added to the monopoly of navigation that of colonial commerce and markets. By this act all the colonial commodities which could not be produced at home were reserved for the exclusive use of English manufacturers and merchants, while those not desired could be sent to England or to other countries. In Chapter 18 of this act are enumerated those commodities which could be exported, on pain of forfeiture, only to England: "no sugars, tobacco, cotton-wool, indigo, ginger, fustick, or other dyeing woods, of the growth, produce, or manufacture of any English plantations in America, Asia, or Africa, shall be shipped . . . to any place whatsoever," except England or other English plantations. This last was later considerably expanded by the addition of various other commodities: naval stores, such as tar, pitch, turpentine, hemp, masts, yards, and molasses (1704); rice (1706); copper ore, beaver skins, and other furs (1722); bar and pig iron, whale fins, hides, lumber, raw silk, and pot and pearl ashes (1764). The monopolization of rice and sugar to English markets became impossible as the production of these commodities in the colonies increased, and

the laws were somewhat relaxed with regard to them. The shipment of rice was permitted after 1730, and of sugar after 1739, direct from the colonies to any part of Europe south of Cape Finisterre; as those were not manufacturing countries England was less jealous of colonial trade with them. But this exportation to the Mediterranean or other South European countries could be carried on only in English ships; colonial vessels were permitted to transport rice and sugar only to England or to some other British colony.

The non-enumerated commodities could originally be sent to any part of the world, including England. No restrictions were placed by the Navigation Acts until 1766 upon the markets for commodities of this sort. Other legislation, however, such as the tariff acts and early corn laws, prohibited the importation of certain food-stuffs into England for the purpose of protecting English agriculture. After 1660, for instance, New England fish were entirely excluded from the English markets; other articles affected were wheat, corn, flour, and meat, all staple exports of the New England and middle colonies. Articles other than food-stuffs could, however, be sent to England, and, as a matter of fact, were shipped there in large quantities, for to them London offered the best market; such were iron, lumber, pot and pearl ashes, whale fins, and similar commodities.

79. Effects of the regulation of colonial commerce. — The purpose of the acts was clear: it was the desire of English merchants and manufacturers to keep America an agricultural country, which should furnish the raw material for England and interfere as little as possible in her trade with foreign countries. The interests of the colonies were made distinctly subservient to those of the mother country. The actual effects of these restrictions upon the commerce of the colonies have, however, been greatly exaggerated. And, moreover, they should be judged according to the then accepted theory of the proper method of dealing with colonies.

Of the original group of enumerated commodities one only

— tobacco — was a product of the American colonies, but this was of sufficient importance, constituting as it did nearly one half of all the colonial exports, to condemn or excuse the whole principle of restriction. By the Act of 1660 all tobacco could be shipped only to England or to English colonies; from England much of it, to be sure, was re-exported to foreign countries, but, though a drawback of the duty was allowed, the additional freights and warehouse charges went into the pockets of English middlemen. On the other hand, the growing of tobacco was prohibited in England and high duties imposed on Spanish tobacco, thus guaranteeing a monopoly of the English market to the Virginia tobacco grower. While the grievance of the Virginia planters was not therefore so great as has usually been assumed, the enumeration of tobacco undoubtedly had a deleterious effect upon its production and price.

The inclusion of rice in the list of enumerated commodities in 1706 imposed a real hardship on the Carolina rice-growers by depriving them of the Spanish and Portuguese markets; that this was regarded as an injury is proved by the relaxation of the law in 1730 so as to permit the direct exportation of rice to any country south of Cape Finisterre. The restriction in 1706 of naval stores (i. e., tar, pitch, turpentine, hemp, masts, and bowsprits) to the English market was probably more than offset by the granting of bounties for their production. By the time the exportation of beaver skins was regulated in 1722, the fur trade was already passing from the American colonies to the French in Canada, but for a time the restriction was keenly felt by certain sections of the colonies.

80. Restrictions upon imports. — While the regulation of exports did not, perhaps, disastrously affect the colonies as a whole, at least before the middle of the eighteenth century, the restrictions upon imports had a more serious effect. The law of 1663 prohibited the importation into the colonies of any commodities of the growth, production, or manufacture of Europe, unless laden and shipped in Great Britain and in

British built and manned shipping. The only articles excepted were salt for the fisheries, wine from Madeira and the Azores, and all sorts of provisions from Scotland and Ireland. The act of 1660 was designed to make England the *entrepôt* for colonial staples; that of 1663 was intended to give her merchants the profits of handling all European goods that were sent to the colonies.

The colonists were not forbidden to import European goods; only they must go to England for them. This meant that a New England vessel, after carrying a cargo of lumber to the Azores, would be obliged to return empty except for wine from the Azores, or make a roundabout trip and load in England for a return cargo on the voyage home. While English merchants and factors were thus afforded an opportunity of pocketing a middleman's profit, prices of such goods in the colonies seem to have been but little if any higher as a consequence, since England was the natural *entrepôt* for such trade. Utterly indefensible, however, was the restriction, by the imposition of prohibitive duties in 1733, upon the importation into the colonies of sugar, molasses, and rum from foreign plantations. Considerable quantities of molasses were at this time annually imported from the French or Dutch West Indies into New England, where it was distilled into rum and used as a basis of a profitable three-cornered trade with Africa. The products of the northern colonies were in great demand there, and the fish of New England, the flour and bread of the middle colonies, and the cattle, horses, and especially lumber of both sections, found a ready market in exchange for the sugar, molasses, cotton, logwood, indigo, and other tropical products of the West India islands.

As the object of this act was to aid the development of the declining British sugar industry, the American colonies were sacrificed, not to the supposed best interests of English manufacturers, but to the greed of British West India sugar planters. In practice, however, this act remained a dead letter. Even more disliked in America was the strict enforce-

ment of the law which accompanied the lowering of these duties in 1764. In fact a recent writer on the subject attributes to the irritation over this part of the English commercial policy much of the feeling against Great Britain which has in the past been assigned to the Stamp Act.

81. Restrictions upon intercolonial trade. — There was still one other branch of commerce which had remained open to the colonies, and that was the trade with each other. The act of 1660 had imposed no restraints upon the intercolonial trade, but certain irregularities in carrying out other provisions of the Navigation Acts had developed. In order to make them effective a law was passed in 1673 requiring that every vessel carrying exports of enumerated articles must either give a bond of £1000 to £2000 that these commodities would be landed in England, Ireland, or Berwick, or pay specific export duties. The intention of Parliament seems to have been that the intercolonial trade must be carried on by way of England or be subject to export duties, but the ambiguous phraseology of the law gave a chance for diverse interpretations. The colonists were disposed to evade paying export duties on enumerated articles shipped to a colonial port. They certainly felt that if they paid the export duties the commodities might rightfully be shipped from the intermediate colonial port to any foreign country. Parliament, however, was determined that the export duties should be paid if the enumerated commodities were shipped to another colony, and that a bond must also be given that they would be delivered in England or an English plantation. The administrative measure of 1696 was passed to provide the machinery, by means of admiralty courts, for stricter enforcement of the earlier acts. This constant interference with commerce involved real hardship to the colonies and secured no corresponding advantage to the mother country. Between 1651 and 1761 upwards of twenty-five acts of Parliament were passed regulating colonial trade.

82. Restrictions upon manufacturing. — During the six-

teenth and seventeenth centuries manufactures were developing in England, and as the colonies became more important the English manufacturers demanded not only protection at home against colonial manufactures, but also the monopoly of the colonial market in which to dispose of their own products. Indeed, the prevention of manufactures in the colonies was an integral part of the mercantile system and simply supplemented the restrictions of the navigation acts; throughout this whole period England watched most jealously every sign of the development of manufactures in the colonies. As early as 1699 the exportation of wool, yarn, and woolen cloth from the colonies "to any other of the said plantations, or to any other place whatsoever" was prohibited. Household manufacturing of woolen yarn and cloth was not forbidden the colonial housewives, but the possible exportation of these commodities in competition with the growing woolen industry of England was thus early prevented. Manufactures for domestic purposes continued to develop in the northern colonies, however, and in 1732 the Commission of Inquiry was ordered by the House of Commons to investigate manufactures in the colonies. In the same year the exportation of hats was forbidden. Finally, in 1750, the erection of any slitting or rolling mills, or plate, forge, or steel furnaces, was absolutely forbidden. This last act was a severe blow to the growing iron industry of the colonies, and coming, as it did, just as the colonies were developing industrially, was a cause of serious irritation against the commercial policy of England. The legislation prohibiting manufactures was the more irritating because the restrictive tariff and commercial policy of England, by shutting the English markets to the agricultural products of the northern colonies and by hindering their exchange in the West Indies, made it difficult for the colonists to obtain the means with which to purchase manufactured commodities. In the southern colonies, whose staple products were not thus prevented from finding a profitable market, manufactures never gained a foothold.

83. Encouragement to industry. — On the other hand, it must be remembered that along with the policy of restriction there went also the policy of encouragement. While manufactures were stifled, the production of raw materials was favored by an extensive system of bounties, from 1705 on, especially on indigo, hemp, flax, timber, naval stores (tar, pitch, turpentine, and rosin), and pipe, hogshead, and barrel staves. One estimate makes the amount paid in bounties to the colonies more than a million and a half pounds. So, too, the production and exportation of pig and bar iron was encouraged by admitting them into England free of duty, while Swedish iron was held off by a heavy tariff. As wood was used for smelting at that time, and not coal, the production of iron was more closely allied to agriculture than to manufactures. Other articles, as tobacco, raw silk, pot and pearl ashes, lumber, iron, whale fins and train oil, etc., were at different times admitted to England either free of duty, or at rates much lower than similar articles from other countries.

In general, therefore, the commercial policy of England was designed to keep the colonies in the state of agricultural communities, which should supply raw materials to English manufacturers and furnish a market for their finished products.

84. Evasion of restrictions. — The situation in the colonies and the silent acquiescence of the colonists in this policy cannot be fully understood unless we realize to how great an extent the provisions were evaded. In the first place, the laws were allowed to become dead letters or were not strictly enforced by English officials. Except for the short period from 1696 to 1721, when there was comparatively strict execution of the laws, the policy of "salutary neglect" of the colonies was adhered to by government officials. Indeed, there was often connivance of the customs officers in the evasion of the laws. In the South there was some illicit trade with the West Indies, while considerable went to other countries than England. Most of the smuggling occurred in New England and the middle colonies, where large quantities of wines, brandies,

and other European goods, together with tea, coffee, spices, etc., from the East Indies, were smuggled into the larger cities. But the most extensive illicit trade was carried on with the West Indies. In 1700 one third of the trade at Boston and New York was said to be in violation of the law. It must be remembered, however, that such contraband trade was regarded in the colonies as perfectly justifiable in view of the restrictive commercial legislation, and that some of the most reputable men were engaged in it. On the coasts of England itself, it is estimated that there were at this time about forty thousand smugglers. Certain it is that the general practice of smuggling and the evasion of the laws made the restrictive legislation of England bear less heavily upon the colonists than it otherwise would have done. Indeed, had it not been for the profits from this illicit trade, the colonies would never have been able to pay for the enormous amount of British manufactures and European commodities annually imported from England; for the first half of the eighteenth century these amounted on the average to about £500,000 a year and were paid for only in part by the colonial products exported directly to England. Lord Sheffield estimated that by means of this indirect and illicit trade the colonies must have remitted to England, between the years 1700 and 1773, upwards of £30,000,000.

SUGGESTED TOPICS AND QUESTIONS. CHAPTER VI

The first problem that presented itself in connection with the colonies was the determination of the proper economic relation between the colonies and the mother country. Then the best method of carrying out this policy had to be evolved and applied. The effects of the policy both at home and in the colonies gave rise to still other problems, governmental as well as economic, such as the proper enforcement and administration of the laws, evasion of restrictions, smuggling, or, on the other hand, suppression of natural developments.

1. When and by whom was the Mercantile System given expression? [J. K. Ingram, Hist. of Pol. Econ., 34–56; U. Rabbeno, chaps. 1, 2, 3; G. Schmoller, The Mercantile System; encyclopedias.]

2. What was the history of the Dutch East India Company? [C. Day, The Dutch in Java, chaps. 2, 3; encyclopedias.]

3. The history of the English East India Company? [G. T. Warner, Landmarks of Engl. Ind. Hist. 202; Beckles Willson, Ledger and Sword; encyclopedias.]

4. Does any modern system of governmental regulation of industry remind you of mercantilism? How?

5. Was the English colonial system a benefit or an injury to the colonies? [W. J. Ashley, in Quart. Journ. of Econ., XIV, 1–29; A. Smith, Wealth of Nations, book IV, chap. 7, part 2; G. L. Beer, The Commercial Policy of England; U. Rabbeno, chap. 3; W. Wilson, Hist. of the Amer. People, II.]

6. Was the English colonial system advantageous to England? [As above; U. Rabbeno, 37–47; D. Ricardo, Princ. of Pol. Econ. and Taxation, chap. 25.]

7. Why did England endeavor to stimulate the production of naval stores in the colonies? [E. L. Lord, Industrial Experiments in the British Colonies of No. Amer., 56.]

8. What was the bounty system as applied to the colonies? Are they granted in the United States to-day? What were the advantages or disadvantages of the system? [Lord, Industrial Experiments, part 2; A. Hamilton, Report on Manufactures in Taussig's State Papers and Speeches on the Tariff, 79–103; also in Annals of Cong., *1791–1793,* 971–1044, and in Works.]

9. Why were there so many smugglers in England at this time? What did they smuggle? [Beer, 131.]

10. Did the price of tobacco rise or fall during the colonial period? Were the price fluctuations caused by the "enumeration" of tobacco? [Beer, 50; Ashley, in Quart. Journ. Econ., XIV, 11.]

11. What was the "three-cornered" trade with Africa? [W. B. Weeden, II, chap. 12; W. J. Abbot, chap. 3; K. Coman, 76–77.]

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CHAPTER VII

REVOLUTION AND REORGANIZATION

85. English policy of taxation. — Until 1763, as has been pointed out, the commercial restrictions imposed by England upon the colonies had been largely evaded or unenforced. By the conclusion of the Seven Years' War, in 1763, the fear of hostilities from the French had been removed and free scope given the colonists to devote themselves to material expansion, an opportunity of which they had been quick to avail themselves. The industries of the country had rapidly developed and an enforcement of the earlier restrictive legislation would have entailed great hardship.

Just at this time, however, changes were taking place in England which led to the insistence upon a stricter colonial policy. The beginnings of the industrial revolution made English manufacturers more eager than ever to monopolize colonial markets and stifle competition. It seemed only fair, moreover, than in the future the expenses of such wars as that with France, waged partly because of the colonists, and of the frontier conflicts with the Indians, should be borne, in part at least, by those benefited. Accordingly, a more vigorous policy of colonial taxation began to be enforced by successive English ministries.

86. Imposts in the colonies. — Under the leadership of Grenville, the prime-minister of the time, Parliament passed the Sugar Act of 1764, by which duties were laid upon indigo, coffee, wines, silks, and other East India and Oriental goods, calicoes, etc., imported into the American colonies, and the existing duty upon sugar from the non-English West India islands was raised, and that upon molasses, which had pre-

viously been unenforced though prohibitory, was lowered and placed upon a revenue basis. At the same time the colonists were absolutely forbidden to import rum or spirits from foreign countries, or to trade with the French West Indies. These measures affected New England especially and caused the utmost discontent in that section. Moreover, the laws were enforced most rigidly, even the naval vessels being used as revenue cutters. A year later, in March, 1765, the Stamp Act was passed, by which it was designed to raise money from the colonists for the maintenance of the soldiers in the colonies. Although this was repealed in the following year because of the opposition it aroused, it was followed, in 1767, by the so-called Townshend Acts, which provided among other things for a colonial revenue from an import duty on wine, oil, glass, paper, lead, painters' colors, and tea, imported into the colonies. Owing to increasing discontent in the colonies and to their complete failure as a revenue measure, the Townshend Acts were repealed after two years, with the exception of the duty of 3*d.* a pound upon tea, which was retained as a proof of Parliament's right to tax the colonists.

BRITISH TAX STAMP

One of the stamps to be used on legal documents in America under the Stamp Act of 1765, by which Parliament calculated to raise about £100,000 in taxes from the colonists.

87. Non-importation as a means of protest. — The right of England to regulate the commerce of the colonies had not been seriously questioned before 1763, and the principle of the various navigation acts had been acquiesced in, with but little complaint, by the colonists. And even now forcible resistance or armed revolution was a long way off. At first the colonists resorted to what appeared to be the only peaceful method of protest, non-importation agreements. The first of these was entered into in March, 1765, by the merchants of New York,

Massachusetts, Rhode Island, and Pennsylvania. They agreed not to import any goods from Great Britain; to countermand orders already given; and to refuse to sell British goods sent on commission, until the Stamp Act of 1765 was repealed. At the same time the people generally agreed to abstain from the use of goods which were not of domestic manufacture, and in other ways to promote domestic manufacture as far as possible.

As a result of these agreements the demand for British goods fell off, merchants curtailed their shipments, and English manufacturers were even compelled to close their mills. English merchants joined with colonial legislatures in demanding the repeal of the obnoxious measure that had caused all this distress. The pressure thus applied was successful and the Stamp Act was repealed in 1766. On this point Adam Smith wrote, "the expectation of a rupture with the colonies struck the people of Great Britain with more terror than they ever felt for a Spanish Armada or a French invasion," and "rendered the repeal of the Stamp Act, among the merchants at least, a popular measure".

88. The second non-importation association. — Although Parliament had repealed the offending legislation, the king and his cabinet were determined to vindicate the right of Parliament to derive a revenue from the colonies. The Townshend Acts were accordingly passed, which provided for the enforcement of the trade regulations, imposed duties on various articles imported into the colonies, and arranged for the payment from these revenues of the governors and judges, in order that they might be independent of the colonial assemblies. These measures aroused fierce resentment throughout all the colonies, and systematic and official resistance was directed against the unpopular measures. The first attempt at non-importation was so successful that in 1769 a second agreement was made by the merchants and people in nine of the colonies to "boycott" English goods. Their purpose was to exert a pressure upon English exporting

merchants, which would cause them to petition for the repeal of the objectionable acts, and in this they were successful. Exportations to the New England and middle colonies fell off almost two thirds; those to the southern colonies, which were economically more dependent upon England, remained almost constant. This is shown in the following table: [1]

Exported from Great Britain to	1768	1769
New England	£430,807	£223,696
New York	490,674	75,931
Pennsylvania	441,830	204,979
Northern Colonies	£1,363,311	£504,606
Maryland and Virginia	669,422	714,944
North and South Carolina	300,925	327,084
Georgia	56,562	58,341
Southern Colonies	£1,026,909	£1,100,369

Once more the demand for the repeal of legislation, which was ruining British trade, inciting resistance in the colonies, and not producing the anticipated revenue, compelled the ministry to yield and Parliament to repeal the offending measures. But again the right to tax the colonies was declared not to have been surrendered and the tax of 3*d.* a pound upon tea was retained as evidence of imperial authority.

89. The third non-importation association. — The trade in tea had long been granted as a monopoly to the British East India Company, which brought all its tea to London, where a duty of 1*s.* a pound was paid, and whence that needed in the colonies was re-exported. That at least was the theory. In practice probably ninety per cent. of all the tea consumed in the colonies, which was over a million pounds a year, was brought directly from the Orient by colonial vessels or was obtained from Holland, in both cases without paying the

[1] Pitkin, Statistical View of the Commerce of the United States, quoted from Macpherson, Annals of Commerce, III, 571–2.

British tax. Now a colonial tax of 3*d.* pound was imposed, the laws against smuggling were enforced, and the imperial tax of 1*s.* a pound was remitted on all tea reshipped from London to the colonies. The tea brought over by the East India Company could now compete with that brought in by the illicit trade of colonial vessels, which, moreover, were now compelled to pay a tax for the first time. There was added therefore, to the political dislike of taxation without representation, the commercial resistance of those whose profitable trade was interfered with. It was John Hancock, the "prince of smugglers," who organized the Boston tea-party.[1] As a punishment for this act of defiance the port of Boston was declared closed, an act which threatened her prosperity, if not her existence.

The other colonies immediately rallied to the support of the beleaguered city, and in various ways assisted her. They made common cause by agreeing to cease intercourse with Great Britain until the offending legislation should be repealed. But, to make it thoroughly effective, such action must be generally enforced. Accordingly, a third suspension of commerce with Great Britain was officially ordered in 1774 by the first Continental Congress. They unanimously resolved that after December 1st of that year "there should be no importation into British America from Great Britain or Ireland, or from any other place," of any goods, wares, or merchandise exported from Great Britain or Ireland. A further resolution was later passed "that from and after September 10, 1775, the exportation of all merchandise and every commodity

[1] According to D. A. Wells, "The colonists were a nation of lawbreakers: nine tenths of the colonial merchants were smugglers. One quarter of the whole number of the signers of the Declaration of Independence were bred to the contraband trade. John Hancock was the prince of contraband traders, and, with John Adams as his counsel, was on trial before the Admiralty Court in Boston at the exact hour of the shedding of blood at Lexington, to answer for half a million dollars' penalties alleged to have been by him incurred as a smuggler." [Lalor's Cyclopedia of Political Science, I, 75.]

whatsoever to Great Britain, Ireland, and the West Indies ought to cease, unless the grievances of America are redressed before that time"; exceptions were made only of tobacco and they were everywhere carried out with the strictest fidelity. rice, to secure the adherence of Virginia and South Carolina. Twelve of the thirteen colonies adopted these resolutions and they were everywhere carried out with the strictest fidelity. ments, and the boycott was more generally observed than on the two previous occasions. Imports from Great Britain fell off from £2,590,437 in 1774 to £201,162 in 1775. From the large importations of the former year it was evident that the colonies were well supplied with British goods for even a lengthy boycott. Parliament answered these resolutions by ordering additional troops to America, and later forbidding the colonies to trade with any part of the world except Great Britain and the British West Indies. The New England colonists were also forbidden to fish along the coast of North America. But before this legislation went into effect the Revolution had begun. The non-importation agreement of the colonies, however, remained in force until April 6, 1776, having been modified the previous year to admit only the importation of munitions of war; on this date the new Congress threw open the commerce of the colonies to all the world except Great Britain.

90. Causes of the Revolution. — The causes of the Revolution were several, but the economic factors were fundamental and important. The surface causes were for the most part political grievances, and the agitation concerning political rights occupied the attention of contemporary and later writers more than the deeper and obscurer economic causes. It is not necessary to underestimate the importance of the political principle involved; namely, that the colonists were entitled to the same rights as Englishmen at home and that they ought not to be taxed by a Parliament in which they were not represented. But the colonists objected not merely to taxation without representation; they were unwilling to

pay taxes at all. Living in a dispersed and unorganized society, in which each man was accustomed to do most things for himself and organized governmental activities were infrequent, the colonists were unaccustomed to taxation and resented it. This was true not merely of their attitude to the English government, but even to the Continental Congress and the Confederation, when these attempted to collect revenues by means of taxation. Their unwillingness to be taxed was accentuated, according to Callender, by the economic depression which prevailed in nearly all the colonies during the decade before the Revolution. It is clear that the well-being of colonies that depended so largely upon foreign trade for their prosperity must have been affected by the interference with commerce which resulted both from the more rigid enforcement of English measures and from their own policy of non-importation.

The commercial policy of England towards the American colonies has already been sufficiently described, but mention may again be made of a few of the more important phases of this policy. To the Sugar Act of 1764, which practically destroyed the lucrative business of rum distilling in New England, with all the other branches of trade connected with it, must be attributed much of the irritation that found expression in resistance to the Stamp Act a year later. The rigid enforcement of the British revenue laws and the consequent interference with the well-organized illicit trade carried on by the colonists increased the dissatisfaction. And finally, the legislation in 1751 and 1764 against the issue of colonial paper money, while doubtless financially sound in principle, had aroused intense resentment and had ranged against the crown all those forces in the community which demanded cheap and abundant money. When revolution flamed out these dissatisfied elements were immediately ranged on the side of the revolutionists.

91. Financial Resources. — When war broke out, the colonies had neither arms nor ammunition, nor money where-

with to purchase them or pay soldiers. In general there are only three methods open to a nation in time of war for raising revenue. These are the issue of treasury notes, taxation, or borrowing. The Continental Congresses resorted to all three of these policies, but the first was their chief reliance and was the one first used. It must be remembered that the Continental Congress was only an emergency body, with little authority and no compelling power for the collection of taxes, and therefore had to resort to any device that seemed capable at the time of yielding revenue. Almost with the beginning of hostilities, in June, 1775, Congress authorized the first

EIGHT DOLLARS
No. 39967 EIGHT DOLLARS
THIS Bill entitles the Bearer to receive EIGHT Spanish milled DOLLARS or the Value thereof in Gold or Silver according to a Resolution of CONGRESS, passed at Philadelphia, Nov. 2 1776
MAJORA MINORIBUS CONSONANT
EIGHT DOLLARS
CONTINENTAL CURRENCY

CONTINENTAL PAPER MONEY

The Continental Congress was not given the power to tax the people, and consequently was compelled to issue paper money in order to carry on the war. In the five years, 1775–1779, over $241,000,000 was issued, and it finally became almost valueless. "Not worth a continental" was a synonym with utter worthlessness.

issue of paper money to the amount of $2,000,000. These were based upon the credit of the States, and were to be redeemed by them after 1779 in silver. By November 29, 1779, the total emissions were $241, 552,780. At this point Congress became alarmed at its own actions and limited the amount in circulation to $200,000,000. As the paper money issued was greatly in excess of the needs of the people and the

States failed to support their credit, the bills began early and rapidly to depreciate. When Congress limited their amount a dollar was worth but two or three cents in specie. The following year Congress provided for their redemption at the rate of forty to one in bills of new tenor, and $119,400,000 were paid in by the States under this law and destroyed. Of the remainder, $6,000,000 was subscribed for bonds under the Funding Act of 1790; the balance was probably lost or destroyed. In addition to the continental currency the States issued their own paper money to a total of $209,524,776, of which Virginia and the Carolinas together put out over three fourths. These States issues competed with the continental paper notes, and hastened the depreciation of both.

Congress had no power to impose taxes or to compel the States to contribute; it could ask for money, but its requests were scantily honored. Even had the States been willing to resort to taxation it would have been impossible to raise the large sums necessary for war expenditure in this way. But they were not willing, since the very war itself was directed against taxation. Congress did succeed in raising some small amounts, however, by requisitions or assessments upon the States, to be paid in specie or supplies, though the system was very ineffective. More important were the loans which Congress was able to make, both at home and abroad. Between 1777 and 1783 they borrowed much needed sums from France, Holland, and Spain, which were received for the most part in the form of supplies and a little specie. It may fairly be said that without the invaluable assistance of France, by her loans as well as by her army and navy, the Revolution could not have been won.

92. Financial reorganization. — The declaration of peace did not solve the financial difficulties of the new government. Industrial unrest and depression followed, and in spite of the disastrous experiences with the continental currency, seven of the States plunged afresh into paper money emissions during the years 1781 to 1788. Accordingly when the constitu-

tion was adopted the emission of bills of credit by the States was forbidden and an end was put to the issue of government paper money for seventy years. A national coinage system was adopted in 1792, which provided for the decimal system of coinage and a double standard at a ratio of fifteen to one.

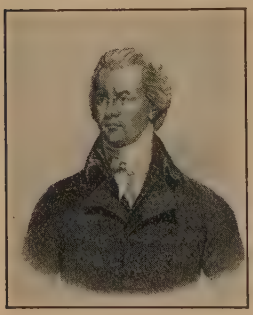
During the revolutionary period the Bank of North America had been established, and by 1787 two others had been chartered, but with the formation of the new government there was need of a strong central financial institution which should be able to act as the fiscal agent of the government. Accordingly the First United States Bank was chartered in 1791 for twenty years, with a capital of $10,000,000, of which the government subscribed one fifth. It was of great service to the treasury department in making loans and acting as a depository and transfer agent of the public funds. This institution was later supplemented by the organization of State banks.

But the most important financial change effected by the new Constitution was the establishment of a strong central government and the grant to it of adequate powers of levying and collecting taxes and of borrowing. The right to issue paper money was not expressly denied to the federal government, and advantage was later taken of this fact.

93. Efforts towards freedom of trade. — In 1776, as stated above, the American ports were thrown open as far as possible to European trade, though British warships and privateers rendered such trade extremely hazardous, except to the districts controlled by the British army, into which British goods were imported in considerable quantities. During this period there were no duties or restrictions upon foreign commerce with other nations in any of the American States, except Virginia. The Revolution was primarily a struggle for freedom of commerce, and consequently there was no desire to limit foreign trade. For instance, the French alliance of 1778 promised to provide for our commercial relations on the " most perfect

equality and reciprocity." After the war, accordingly, an effort was made to realize general free trade with all nations. It was believed that our trade was so important to the nations of Europe that they would consent to abolish their restrictions upon foreign trade in our favor rather than lose it. Nor was the desire for universal free trade based merely upon sentiment; it would have been commercially most profitable.

Up to this time the nation had been primarily agricultural and commercial, and there was little thought that the United States would ever become a manufacturing nation, economically self-sufficing. Consequently, freedom of trade with other nations was eagerly sought for until about 1784. Indeed Stanwood, an ardent protectionist, believes that had the Constitution been drawn up in 1782, "it is not unlikely that it would have contained a prohibition of all laws in restraint of trade, foreign or domestic."



PITT, THE YOUNGER

Second Earl of Chatham. He became premier in 1783 and attempted to carry out a liberal domestic and foreign policy. Born in 1759, died in 1806.

94. Failure of efforts. — The only countries with which Congress was able to make treaties guaranteeing reciprocal commercial privileges were Prussia and Sweden; France and Holland made commercial treaties, though not on this basis; but Spain and Portugal refused to accede to our overtures. An attempt was made by Jay to secure some reciprocal provision from England in the treaty of peace in 1783, but unsuccessfully. Indeed, after the defeat of Pitt's effort to secure freedom of trade between the United States and the British colonies, Parliament proceeded to exclude American vessels from the British West India trade by admitting only British built and manned vessels to the islands, and to subject American ships in other British ports to heavy tonnage dues. In

addition, France and Spain in 1783 closed their West Indian ports to American ships. The loss of the West India trade was a particularly heavy blow to the United States, for even from early colonial times it had been a most valuable branch of our commerce. Wheat, corn, and flour had been exported from the New England and middle colonies to the West Indies, with the proceeds from which, in bills of exchange, goods had been purchased from England. As these colonies had little to export directly to England, without this trade they could not have paid for their imports from that country; in 1769 the total colonial trade with the West Indies amounted to £1,537,664. The economic prosperity of a large part of the States therefore still depended directly upon the trade with the West Indies. Furthermore, even in direct trade with Great Britain American ships were permitted to carry goods produced only in the particular States of which their owners were citizens.[1] As only one fourth of southern shipping was owned by residents of that section, this was almost equivalent to forbidding southern exports to Great Britain except in British vessels, or to a re-enactment of the old navigation laws.

One other branch of foreign trade still remained open to American shippers and that was the trade with the Mediterranean countries of Europe. This had been very profitable during the colonial period. But when our vessels attempted to regain these markets after the Revolution, they were captured by the Barbary pirates. The protection of the powerful British navy was now lacking, and the Congress of the Confederation was too weak to resist the pirates. Even after the Constitution was adopted immunity from attack was obtained only by paying tribute, until we made war upon them in 1802.

95. Economic depression. — In spite of the closing of foreign markets to American ships or goods, British manufactures were imported in large quantities after the declaration of peace. Several important consequences followed from

[1] Marvin, The American Merchant Marine, p. 31.

this situation. In the first place, the means of payment with which the colonists had paid for British goods or West India sugar and similar commodities during the colonial period were now lacking. Then the colonists had used the bills of exchange which they obtained in the West Indies for products sold there, or they had exchanged goods against goods. Now that they could not avail themselves of either of these methods on any considerable scale they had to export their specie. But this was insufficient to pay for all their imports, and they came to be heavily in debt to foreign merchants. In this emergency they did two things: they passed stay laws or moratoria, suspending the right of creditors to collect debts for a certain period, and in all the states but four they issued paper money to take the place of the vanishing specie. Unfortunately these remedies only made matters worse.

A second result was the ruin of many of the struggling manufactures which had sprung up during the Revolution; the workmen were thrown out of employment and the owners suffered heavy losses. Another effect of the hard times was a great increase in emigration to the West. Beginning with about 1784 a steadily growing stream of soldiers with military scrip, debt-burdened farmers and artisans from the Atlantic seaboard, and adventurous pioneers combined to fill the western country with one of the most composite populations to be found in the United States; by 1790 there were about 200,000 persons in the territory west of the Alleghanies.

But even in the West the people were having trouble. The profitable flatboat trade which they had carried on with New Orleans by way of the Ohio and Mississippi rivers was suddenly closed to them by Spain in 1783. When they asked Congress to compel Spain to open the river to their trade, they received little satisfaction. Indeed the merchants and shipowners of the eastern states were willing to let Spain close the Mississippi if she would open the West Indies. The western farmers were greatly incensed when they heard of this and talked of withdrawal from the Union. It was at this time that

Washington wrote: "The Western states hang upon a pivot; the touch of a feather would turn them either way."

96. Retaliation by the States. — It seemed as if the only effective method of securing equal trading privileges from Great Britain and the other European nations would be to engage in systematic reprisals. Owing to the weakness of Congress under the Articles of Confederation such action was impossible by the central government, and although power to levy taxes and regulate commerce was repeatedly asked for by Congress, it was never granted. Until 1789, therefore, the separate States undertook to regulate commerce and by retaliatory measures obtain greater freedom. During the years 1780 to 1788 Pennsylvania enacted fifteen tariff acts; Virginia twelve; Massachusetts, New York, and Maryland, each seven; Connecticut, six; and the other States a smaller number. While those in the southern States were chiefly for the purpose of revenue, the tariffs of the middle and New England States were dictated by motives of retaliation and protection. Discriminating tonnage dues and import duties were imposed by most of the States upon British imports, but as the duties varied all the way from five to one hundred per cent., and some of the States admitted such goods free of duty, British goods continued to flood the country through the free or cheapest ports. It must be remembered, however, that trade with England was, as it always has been, the most profitable trade for the United States. To make matters worse, the States finally began to make commercial war upon each other, and to enact tariff laws which excluded each other's products.

97. Federal control of commerce. — It had now become evident that even if reprisals were desirable, it was impossible to carry them out so long as each State controlled its own action with regard to foreign commerce. Unified action could never be secured until Congress should be made supreme in foreign relations. Moreover, the mutual jealousies of the States were daily making some plan of central control more

necessary. At the same time American industries had been developing and a growing desire for protection began slowly to replace the idea of retaliation. The growth of new industries, it was thought, would lessen our industrial dependence upon England, which meanwhile showed no signs of removing her commercial restrictions.

Accordingly a commercial convention assembled at Annapolis, in September, 1786, to consider the trade of the United States; but, as several of the states were not represented by delegates, they recommended that another meeting be held at Philadelphia in 1787. This was approved by Congress, and in May of that year the constitutional convention met for its important work, and by September had framed the Constitution to take the place of the discredited Articles of Confederation. This was finally adopted by the states in 1789.

By the Constitution the control over foreign commerce was vested solely in Congress, thus laying the foundation for a unified and splendid development.

By the first tariff act under the new Constitution, a rebate of ten per cent. was allowed on all imports in American vessels, while special encouragement was given to the China trade by making the duties on tea brought direct from the Orient in American ships about one half those on tea in foreign vessels or in American vessels if brought from London. This last was aimed at the monopoly of the English East India Company. By the second act of Congress (July 4, 1789) further protection was given to American shipping by the following discriminating tonnage dues:

On all American built, American owned vessels, per ton	6 cents
On all American built, foreign owned vessels, per ton	30 cents
On all other vessels, per ton	50 cents

The ship-building industry was also encouraged by permitting registry under the American flag only to vessels built in the United States. This provision remained in force until 1912.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER VII

Non-acquiescence in the enforcement by England of the commercial restrictions upon the colonies gave rise at once to the problem as to the form which such resistance should take. When the Revolution finally occurred, the further problem arose as to how this should be financed. Peace in turn brought serious problems of domestic reorganization and of foreign commercial policy. Along both these lines a short period of painful experimentation was followed by the establishment of what has proved to be a permanent policy.

1. Was Grenville's contention that the colonists should pay a portion of the expense incurred in their defense just? [Sir G. O. Trevelyan, Hist. of Amer. Revol., I; K. Coman, 96; G. E. Howard, Prelim. of the Revol., chap. 6.]

2. Why did the Sugar Act of 1764 especially affect New England? [K. Coman, 94.]

3. Was the Stamp Act unfair? What are the advantages and disadvantages of a stamp duty? Do we have such taxes to-day? [J. Fiske, Rev., I, 14–27; G. E. Howard, Prelim. of Rev., chaps. 7, 8; C. C. Plehn, Intro. to Pub. Fin. 262.]

4. Were non-importation associations a good method of protest? Did they at all resemble the Consumers' League of to-day? [Howard, Preliminaries of the Revolution, see Index; Coman, 94–103; W. D. P. Bliss, New Encyclopedia of Social Reform, art. Consumers' League.]

5. Were privateers valuable in aiding us to obtain our independence? Are they used in modern warfare? Why? [W. L. Marvin, 12–18; E. Schuyler, Amer. Diplomacy and Commerce, 371–403; J. W. Foster, Century of Amer. Diplomacy, 93.]

6. Was the issue of continental paper money necessary? Was its repudiation inevitable? [D. R. Dewey, Financial Hist. of the U. S., 41–43; W. G. Sumner, Financier and Finances of the Revol., I, chap. 4; W. G. Sumner, Amer. Currency, 43–60; A. C. McLaughlin, Confederation and Constitution, chaps. 4, 9.]

7. What is the meaning and origin of the expression "not worth a continental"? [H. White, Money and Banking, 126.]

8. Why did the States issue paper money during the years 1781–1788? [J. Fiske, Crit. Period, 168–186; McLaughlin, The Confed. and the Const., chap. 9.]

9. Give some examples of "Commercial War" between the States, such as referred to in Sec. 96. [J. Fiske, Critical Period.]

10. Why did not Rhode Island enter the Union at the same time as the other states? [Fiske, Crit. Period, 345; F. G. Bates, Rh. Is. and the Formation of the Union.]

11. What provision in the Constitution regulates the issue of paper money by the States? Why was it inserted?

12. What clauses of the Constitution give Congress the right to regulate commerce with other nations?

13. Why did the efforts of the United States to secure freedom of trade with other nations fail? [W. L. Marvin, chap. 3; K. Coman, 110–112; E. Stanwood, Tariff Controversies, I chap. 2.]

14. Describe the relations of the United States to the Barbary pirates more fully.

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*Dewey, D. R.: Financial History of the U. S., chaps. 2, 3.

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CHAPTER VIII

NEUTRALITY AND FOREIGN TRADE

98. Continental wars and the carrying trade. — Beginning almost with the formation of the new government there was a complete shifting of economic interests, and the growing demand for protection to manufactures quickly gave way before the expansion of commerce that occurred. The same year that saw the establishment of our present form of government witnessed the French Revolution. In 1793 war broke out between France and England and spread until it finally involved all the nations of Europe. For over twenty years the best energies of these peoples were devoted to destruction and warfare. These events made American merchants, who throughout the struggle occupied a position of neutrality, and at the same time possessed the only considerable neutral merchant fleet, the principal carriers of the trade between the warring nations and their colonies. Few ships except those of Englishmen or Americans were found on the high seas — the former because England was the undisputed mistress of the seas, in contrast with her enemies, and the latter because of their neutral position. After 1795 France abandoned the policy of maintaining her fleet on a footing of anything like equality with that of England, but trusted to privateers to prey upon British shipping. French merchant vessels were left unprotected and their number declined until there was literally not a single merchantman flying the French flag to be found on the seas. The chief effect of this was to throw into our hands the carrying-trade between France and her allies and their colonies. As a recent writer puts it, " while the great commercial nations were fighting one another for the carrying-

trade of the world America ran away with the bone over which they were quarreling."

99. Rights of neutral trade. — But under the prevailing principles of international law, the rights of neutrals were but little respected. According to the Rule of War of 1756, a neutral could not enjoy in time of war a carrying-trade which was prohibited in time of peace. Great Britain therefore proceeded against such of our vessels as attempted to trade with the French West Indies, which had previously been closed to us. As trade from the British West Indies to the United States had been prohibited since 1783, this section was practically closed to legitimate commerce. Moreover, provisions were then considered contraband of war, and both the French and British governments ordered the capture and condemnation of neutral vessels carrying provisions to the enemy's ports.

An even more irritating claim of Great Britain was the right to impress British sailors found on American vessels for service on their men-of-war. Jay's treaty between the United States and Great Britain did not settle these difficulties, while it greatly irritated France, almost to the point of war. France claimed that by the terms of the French alliance of 1778 we had agreed to make common cause with her against Great Britain in the event of a war. The nation was greatly offended by our policy of neutrality, openly insulted our government, and was all but at open war with us from 1798 to 1800. In the year 1798 Congress declared the treaty of 1778 at an end, and we were freed from foreign entanglements.

100. The harvest from neutrality. — In spite of these embarrassments, the carrying-trade of American shipowners showed an enormous expansion during the period from 1793 to 1801. Our total foreign trade increased from $48,000,000 in 1791 to $205,000,000 in 1801, while our exports increased from $19,000,000 to $94,000,000. There was a large and steady demand for agricultural products for exportation to the belligerent countries, and the prices of wheat, corn, and meat were

very high. The profits from the production and freight of these goods were enormous.

At the same time much of the trade between the belligerent nations and their colonial possessions was thrown into the hands of American shipowners. In spite of the proclamation by England of the Rule of War of 1756, the products of the French, Spanish, and Dutch East and West Indies were either carried directly to Europe or were first shipped to the United States and then re-exported. While none of the United States ports lay on the direct route betwen South America or the West Indies and Europe, the fact that it lay on the arc of a great circle and was favored by the trade winds and Gulf Stream made the roundabout route but little longer in point of time. Futhermore, by calling at an American port, re-shipping the goods, and taking out fresh papers, the danger from English privateers was removed for ships not carrying contraband goods; drawbacks of the import duties were of course allowed on all re-exports from the United States. In 1801 over one half of our exports were re-exports. As early as 1793 the tonnage of the United States exceeded that of any other nation except England.

101. Expansion of American shipping. — The development of the carrying-trade received a temporary check during the Peace of Amiens (1802), which left France, Holland, and the other European nations free to carry on their own trade, but upon the renewal of war in 1803 our commerce again expanded until 1807, when it amounted to $247,000,000: imports, $138,500,000; exports, $108,300,000. It has been estimated that the freight earnings of American vessels amounted during this period to about $32,500,000 per annum. Under this stimulus the tonnage of American vessels engaged in foreign trade increased from 346,254 tons in 1790 to 744,224 tons in 1805; during the same time the percentage of foreign trade carried in American bottoms increased from twenty-five to ninety-one per cent. The ship-building industry also received its share of this general prosperity: between the

years of 1798 and 1812 over two hundred thousand tons of American built shipping were sold to foreigners. As Pitkin says, "The increase of American tonnage, during the period under review, has no parallel, in the commercial annals of the world."

102. Effect upon agriculture. — But the effect of the Continental wars was not confined to shipping and the carrying-trade. A European market was created for the food stuffs of the United States. They were too busy fighting to raise all the necessary food themselves, and moreover the free export of grain from the Baltic regions, then the granary of Europe, was prevented by Napoleon. The unprecedented demand for the agricultural products of this country raised their prices to extreme heights. Thus the price of flour at Philadelphia averaged $9.12 a barrel from 1793 to 1807, while for nine years previous it had been only $5.41 and for nine years afterwards was $5.46. There was also a growing demand for meat, for cotton and wool, and other raw materials. The production and sale of these products meant enormous profits for American farmers as well as shipowners, and was speedily reflected in the enhanced price of lands. According to official valuations by the federal government, the price of lands advanced over $950,000,000 between 1799 and 1815. Of course other factors were operative, such as the increase of population, the clearing of new lands, etc., but no small part may be attributed to the profitableness of agriculture during the greater part of this period. From whatever aspect we look at the developments of this period, it is evident that the American farmer and shipowner were profiting largely at the expense of the European belligerents. Moreover the profits obtained from these sources were used to develop our resources and improve agriculture still further.

103. Blows at neutral trade. — The expansion of American commerce received a serious check in 1807 as a result of the various English Orders in Council and Napoleon's Berlin and Milan decrees, which were directed against the neutral trade.

As we had especially profited by our position as neutrals before, so now our prosperity was most disastrously affected. The English Orders in Council of August, 1804, had declared all French ports, from Ostend to the Seine, to be in a state of blockade, which was extended by the Order of May, 1806, to all the coast from the river Elbe to Brest. While this was largely in the nature of a "paper blockade," it made neutral vessels trading with such ports liable to capture. The English government hoped in this way to deprive France of needed supplies from her colonies, and at the same time to stifle the alarming growth of the American carrying-trade. Napoleon, whom the battle of Jena had made master of the continent, retorted with the Berlin decree of November, 1806, which declared the British islands in a state of blockade and forbade all trade with them; further, no vessel which had touched at an English port was to be permitted to enter any port of France.

This was quickly followed by other British Orders in Council during 1807, which declared all ports belonging to France or her colonies or allies to be in a state of blockade, and stated that no neutral vessel could trade with them unless it first entered a British port, took out a British license to trade, and paid re-export duties. In answer to this, Napoleon issued the Milan decree, in December, 1807, which declared every ship sailing to or from Great Britain or her colonies to be good prize, and that every ship which submitted to the English orders was denationalized and liable to seizure. These decrees were directed against all neutral trade and were dictated by a desire not so much to harm that as to injure the antagonist who was profiting by this neutral trade. But the United States was the only neutral carrier of importance and naturally felt the full force of these decrees. Privateers were licensed by England and France and their allies, and seized many a rich prize; less was done by ships of war. About 1600 American vessels and $60,000,000 worth of property were captured by French, English, and other privateers.

104. The Embargo and Non-Intercourse Acts. — As a peaceful mode of retaliation for the injuries inflicted on American shipping, a non-importation act had been passed by Congress, in 1806, directed against England and her colonies, which was to go into effect in November, 1807. Before that time its operation had been postponed until December, and its repeal or non-enforcement was generally expected. Jefferson, who above all things desired peace, had also endeavored to conclude a treaty with England in 1806, but had not been able to secure a satisfactory adjustment of the matters in dispute. When, however, the news of these various indignities reached the United States, Jefferson recommended to Congress that an embargo be placed on American shipping or, as he expressed it, "an immediate inhibition of the departure of our ships from the ports of the United States." The Embargo Act, passed December, 1807, prohibited American vessels leaving the ports of the United States for those of any foreign power. Foreign vessels could depart from the United States only in ballast or with the cargo which was on board when the law was passed. American vessels might engage in the coasting trade, but in that case they must give bonds to twice the value of the ship and cargo that the cargo would be landed in the United States. Later acts placed the navy and the revenue cutters at the disposal of the executive and gave him almost despotic powers in dealing with both foreign and domestic trade.

The effect of the embargo was immediate and most disastrous upon our foreign trade: in a single year our exports fell from $108,300,000 to $22,400,000. "In the large shipping towns business of every kind fell off, and soon utterly ceased. The rope walks were deserted. The sail-makers were idle. The shipwrights and draymen had scarcely anything to do. Pitch and tar, hemp and flour, bacon, salt fish, and flaxseed became drugs upon the shippers' hands. But the greatest sufferers of all were the sailors." It was estimated at the time that thirty thousand seamen were thrown out of employ-

ment and that in all one hundred thousand men were out of work for a year. The farmers, too, who had been buying land on credit and raising greater crops in expectation of the foreign demand, soon began to feel the effects, and many of them were forced into bankruptcy. Lumbermen and fishermen, and finally merchants, were ruined by the stoppage of trade with the outside world. The jails were filled with debtors, while a contemporary visitor to New York describes that city as if ravaged by pestilence, so dead was its commerce. The effects of the embargo were most severely felt in New England and New York, where foreign commerce was greatest, but even in the South and West they were disastrous. So strong was the opposition that Jefferson finally yielded to the pressure, and fourteen months after its enactment the embargo was repealed. In its place was substituted the Non-Intercourse Act of 1809, which removed the embargo upon American shipping and instead adopted the policy of non-intercourse with England and France. As a result of these acts, not merely was our commerce seriously affected, but our treaty relations were strained or broken.

105. The War of 1812. — When the embargo gave way to non-intercourse, American commerce quickly responded to the opportunity, and in 1810 the tonnage engaged in the foreign trade was 981,019 tons, a figure not equaled again until 1847. But the evils against which the embargo had been directed continued unchecked: American seamen were still impressed by British vessels, and renewed restrictions were placed upon our neutral trade both by Napoleon and England. As a result of these continued acts we finally declared war against England in June, 1812. Owing to her naval strength our foreign commerce could now be carried on only at great risk, and much of our shipping was destroyed. In three years we lost over 1400 merchant vessels and fishing boats, and 1813 saw the tonnage engaged in foreign trade reduced to 672,700 tons, the lowest point reached since the year 1805. On the other hand, the five hundred and odd American privateers

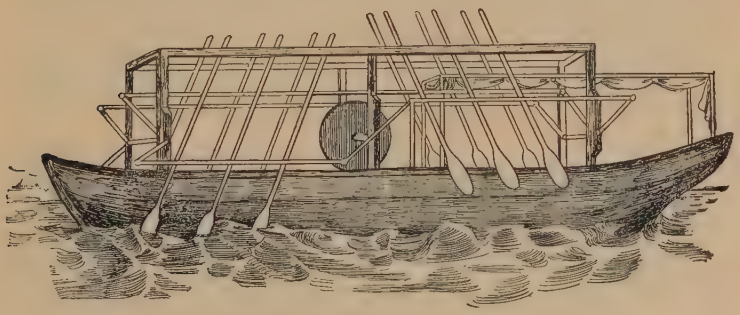
which were commissioned by our government captured during this period over 1300 British vessels.

The War of 1812 was a series of contradictions, and perhaps the greatest was the treaty of peace in 1814. None of the questions for which we had gone to war was settled definitely, but England ceased to impress our seamen, and the conclusion of the Napoleonic wars soon afterwards rendered unnecessary our contentions as to the rights of neutrals and the definition of a blockade. Our navy had won renown for itself and we had successfully asserted our commercial independence. The period of restriction between 1807 and 1815 had, moreover, called into existence other interests, and economic activities had been diverted into channels other than foreign commerce, especially into manufactures and the development of the West.

106. Commercial treaties. — The first commercial treaty made by the United States, even before political independence had been gained, was with our ally France. By the treaty of 1778 we were granted commercial privileges in her ports, but this was suspended in 1798, when our relations with that country became strained. During the years 1798–1800 we were practically at war with France, but in the latter year Napoleon restored friendly relations and concluded a treaty of commerce and navigation, which secured reciprocity of treatment in respect to customs duties and tonnage dues. Owing to French encroachments upon our commerce during the following years, the treaty had little practical value. Subsequent treaties were made with the Netherlands (1782), Sweden (1783), and Prussia (1785). This treaty of 1785, with Prussia, which provided for reciprocal duties and customs dues, continued in force, with slight modifications in 1799, for thirty years. Our commercial relations with Great Britain remained disturbed after the Revolution and until the conclusion of the War of 1812 secured commercial in addition to political independence. The Jay treaty of 1794 granted to British merchants greater privileges than were given to Americans, and was so unpopular that its ratification by the United

States Senate was obtained with difficulty. But during the Napoleonic wars commercial treaties did not suffice to protect American merchants or sailors from aggression; all treaty relations were seriously strained by the Orders in Council and the embargo, and finally broken off by the declaration of war.

107. The invention of the steamboat. — During the period of these foreign entanglements a peaceful revolution of far greater moment was proceeding at home; this was the invention of the steamboat. As early as 1783 Oliver Evans began experimenting with the application of steam to the propulsion of wagons and boats, but not until 1804 did he successfully carry out his plans. In that year the drove a wagon by steam through the streets of Philadelphia and then propelled his



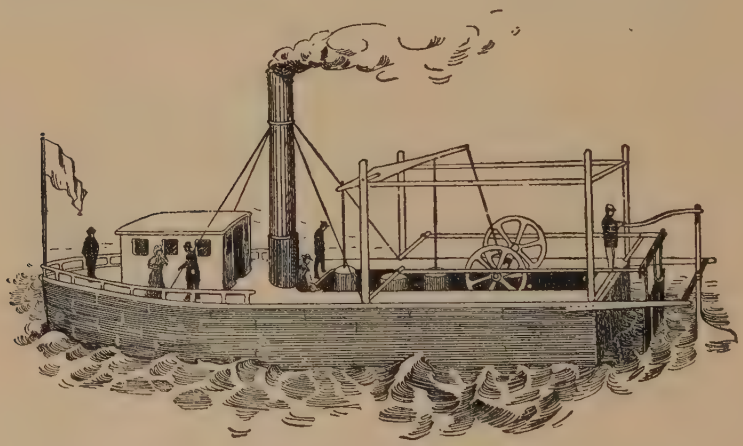
FITCH'S SECOND BOAT

The second experimental boat of John Fitch was finished in May, 1787, and was propelled by oars fastened to a frame. It ran on the Delaware and made a speed of four miles an hour.

steamboat, the *Oruktor Amphibolos,* up the Schuylkill by means of paddle wheels. Better claims for priority were advanced by James Rumsey and John Fitch, about the same time. Fitch began experimenting with his steamboat in 1785, and in the summer of the following year made his first trial trip on the Delaware; paddle wheels were first used and later a system of six upright oars on each side. The astonishing

speed of eight miles an hour was made. Pennsylvania granted Fitch " the sole right and advantage of making and employing the steamboat by him lately invented for a limited time," namely, fourteen years. A similar monopoly was granted by Delaware, New York, and Virginia. Regular trips were made during the summer of 1790, between Philadelphia, Bordentown, Trenton and Wilmington, but were abandoned after that time, as they proved unprofitable.

Meanwhile, Rumsey had succeeded in propelling a steamboat of his own invention on the Potomac, in December, 1787. By his method water was sucked in at the bow and ejected at the stern. On the trial trip a speed of four miles an hour



FITCH'S THIRD BOAT

Fitch's third boat was the first steamboat ever built to carry passengers. It was finished in April, 1798, and the following year was run to Burlington regularly as a passenger boat, maintaining a speed of eight miles an hour in smooth water.

was attained against the current. Before the end of the century other successful experiments had been made by Nathan Read at Salem, by Samuel Morey on the Connecticut, by William Longstreet on the Savannah, by Elijah Ornsbee at Providence, and by John Stevens on the Hudson. Defects

in the engines, in the size of the wheels, and in other particulars prevented any of these inventions from becoming commercially profitable, however, and the honor of first making the steamboat a practical success was reserved for Robert Fulton. In August, 1807, he sailed the *Clermont* from New York to Albany, one hundred and fifty miles, in thirty-two

FULTON'S CLERMONT

When the *Clermont* started on her epoch-making trip up the Hudson in August, 1807, sceptical crowds lined the shore to see "Fulton's Folly." Fulton himself wrote: "The morning I left New York there were not perhaps thirty persons in the city who believed that the boat would even move one mile per hour, or be of the least utility." The trip of 150 miles from New York to Albany was made in 32 hours. While the speed was slow, the practicability of the steamboat had been successfully demonstrated and a new era in water transportation introduced.

hours. The vessel was one hundred and thirty feet long, and was provided with side wheels fifteen feet in diameter, with buckets four feet wide. Clumsy as the vessel was, it demonstrated the practicability of steam navigation by water and secured for her owners, Fulton and Livingston, a monopoly of the waters of New York State for twenty years. Steamboats now began to come into general use: the summer of 1809 saw one on Lake Champlain, another on the Raritan, and a third on the Delaware. Two years later the steamboat was introduced on the Ohio, and the era of steam as applied to water transportation had fairly begun.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER VIII

With the outbreak of the war in Europe the problem was presented to the people of the United States as to how they could best adjust their economic organization to take advantage of the new opportunities. But the position of neutral was not without its dangers and the problem soon arose as to the proper attitude toward indignities offered by the European belligerents. Relations toward the non-belligerent nations also called for adjustment.

1. Why does the Neutrality Proclamation mark an epoch in the history of the United States? [J. B. McMaster, II, 89; J. Schouler, I, 263; A. B. Hart, Hist. told by Contemp., III, 305–7.]

2. What rights had a neutral nation in 1800? What to-day? [E. Channing, The Jeffersonian System, chap. 15; Encycl. Brit., art. International Law, last part.]

3. By whom were the continental wars waged, and how long did they last? [G. P. Fischer, Outlines of Univ. Hist., 515–543; J. H. Robinson, Hist. of Western Europe, 593–624.]

4. Were there any other important neutral nations than the United States at this time?

5. Describe the treatment of American ships and sailors by England and France. [McMaster, III, 200; Schouler, II, 133; Hart, Hist. told by Contemp., III, chap. 18.]

6. Was the embargo constitutional? Was it wise? What effect did it have on the economic development of New England? [McMaster, III, 412; W. L. Marvin, chap. 7; K. Coman, 173–175; E. Channing, The Jeffersonian System, chap. 16; F. A. Walker, Making of a Nation, chap. 10.]

7. How did the embargo affect the southern States? [Marvin, chap. 7; E. Channing, The Jeffersonian System, chap. 17; T. Pitkin, Hist. of U. S.]

8. What were the the English Orders in Council and Napoleon's Berlin and Milan decrees? [Walker, Making of the Nation, 195–197; McMaster, III, 421–417; G. P. Fisher, Univ. Hist., 527; Coman, 172.]

9. Why did not Fitch's or Rumsey's or Evan's steamboats succeed? [J. L. Bishop, I, 76–77; Coman, 146–148; McMaster, I, 435, III, 487; H. Adams, Hist. of U. S., I, 66–72.]

10. Describe our early trade with China. [J. W. Foster, Amer. Diplomacy in the Orient, chap. 2; E. Schuyler, Amer Diplomacy and Commerce, 292.]

11. Did Fulton first invent the steamboat? Is he entitled to the

credit of it? [Bishop, I, 75; W. L. Abbot, chaps. 2, 8; A. B. Hart, Essentials, 225, 274.]

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CHAPTER IX

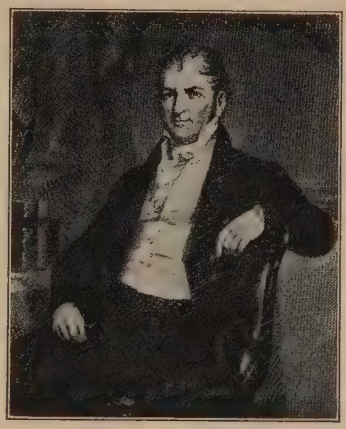
COTTON AND SLAVERY. AGRICULTURE

108. The introduction of cotton culture. — Up to the time of the Revolution the culture of cotton had remained practically undeveloped. Other products, as tobacco in Virginia, rice in South Carolina, and pitch and tar in North Carolina, had proven more profitable. Under the English colonial system, moreover, cotton manufacturing for export was forbidden in North America. Even more important was the difficulty and expensiveness of cleaning the fiber from seed and impurities. According to Whitney a man could separate the seed by hand from only about one pound of lint of the short staple variety, or about ten pounds of the sea island cotton, in a day, which made the cost of cotton goods prohibitive for general use.

With the outbreak of the Revolution and the consequent demand for garments, together with the removal of colonial restrictions and the encouragement to manufactures, considerable stimulus was given to cotton production. Sea-island or long-staple cotton was introduced into the lowlands of South Carolina and Georgia in 1786, and proved well adapted to conditions there, so that its production increased rapidly. It could be cleaned of its seed by a simple roller gin; but the area suitable for growing it was limited, and attention was next directed to the development of the short-staple or "upland" cotton on the interior lands. By 1789 the production of both varieties was estimated by Woodbury at 1,000,000 lbs.; in 1790 at 1,500,000 lbs.; and in 1791 at 2,000,000 lbs. Of this South Carolina produced three fourths and Georgia most of the rest. At the same time, the improvements in cotton machinery in England had created a vastly increased

market for raw cotton, the number of persons engaged in the spinning and weaving of cotton having increased from 7900 in 1760 to 320,000 in 1787.

109. Whitney's cotton-gin. — The way was now open for the rapid development of cotton culture in the South; the only obstacle was the difficulty of cleaning the fiber. In 1792 Eli Whitney, a Connecticut school teacher, while visiting in Georgia, had his attention directed to the need of a machine for doing this work, and in April, 1793, succeeded in perfecting a cotton-gin by which the lint was picked from the seed by means of saw-teeth on a revolving wheel. By this machine three hundred pounds of cotton could be cleaned by one person in a day, and immediately the demand for it spread throughout the entire cotton region. Mr. Whitney and the partner he associated with him, Mr. Miller, made the mistake of endeavoring to monopolize the production and sale of the gins, but the planters would not wait for such a valuable invention to be supplied so slowly, and soon invaded his patents. The State of South Carolina granted him $50,000 to secure the privilege of the gin for her citizens, and North Carolina about $12,000, most of which was soon spent in wasteful law-suits.



ELI WHITNEY

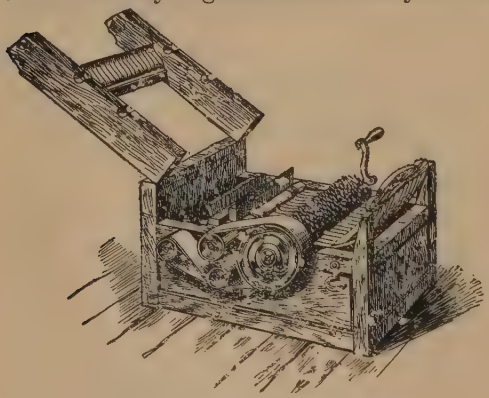
Whitney was born in Massachusetts in 1765 and graduated from Yale College in 1792. He then went to Georgia as a teacher and while there was asked by the neighbors, because of his known ingenuity, to make a machine for them that would clean the seed from the cotton, which at that time was done by hand. His efforts resulted in the cotton-gin, the most important machine ever invented in the United States. His patents were invaded and he made nothing from this invention, though later he acquired a fortune from the invention of firearms.

After the invention of the cotton-gin, American cotton, which had been dirty and poorly picked up to this time, became a popular and marketable commodity. The production and export increased by leaps and bounds, as will be seen from the appended table.

PRODUCTION AND EXPORTS OF COTTON

Year	Production in United States (in lbs.)	Exports from United States (in lbs.)	Price per lb. (in cents)
1790	1,500,000	.....	14½
1795	8,000,000	6,276,300	36½
1800	35,000,000	17,789,803	28
1805	70,000,000	38,390,087	23
1807	80,000,000	63,944,459	21½
1810	89,000,000	93,261,462	16

So rapid indeed was the development of this new industry that when Jay negotiated the treaty of 1794 with Great Britain he apparently did not know that cotton was raised for exportation in the United States; he accordingly included it among the articles not to be exported from the United States in American bottoms. The Senate, however, did not agree to this provision.



WHITNEY'S COTTON-GIN

Until Whitney's invention the seeds had been removed from the cotton either by hand or by the roller mill. Now the cotton was forced by toothed cylinders through wire ribs, which separated the seeds from the lint. In a day a slave could clean by hand 1, by the roller mill 10, and by the cotton-gin 200 pounds of cotton.

110. Decline of slavery. — After the Revolution, slavery declined,

not only in the North, where by 1804 legislation had been passed in all the States providing for its ultimate abolition, but in the South also. Except on the rice and indigo plantations of the Carolinas and Georgia the economic disadvantages of slave labor were so apparent that many prominent Southerners favored its early abolition. By 1796 Virginia, South Carolina, Georgia, North Carolina, and Maryland, of the southern States, had all forbidden the importation of slaves. Indeed, so far had the movement towards the extinction of slavery proceeded by 1794, that Tench Coxe was able to write in that year: "The separate American states (with one small exception) have abolished the slave-trade, and they have in some instances abolished negro slavery; in others they have adopted efficacious measures for its certain but gradual abolition. The importation of slaves is discontinued, and can never be renewed so as to interrupt the peace of Africa, or endanger the tranquillity of the United States." Even from Georgia came the statement by a representative in the fifth Congress: "Not a man in Georgia but wishes there were no slaves; they are a curse to the country." The fall of the price of slaves was a further evidence of the growing unprofitableness of slavery: in 1790 the best hands could be bought for two hundred dollars each.

The following quotation from the journal of Philip Fithian, a Princeton student and a tutor to a rich family in Virginia in 1774, gives an enlightened view of slave labor on a great plantation during this period: "After supper I had a long conversation with Mrs. Carter concerning Negroes in Virginia, and find she esteems their value at no higher rate than I do. We both concluded (I am pretty certain that the conclusion is just) that if in Mr. Carter's, or in any Gentleman's estate, all the Negroes should be sold, and the money put to interest in safe hands, and let the land which these Negroes now work lie wholly uncultivated, the bare interest of the price of the Negroes would be a much greater yearly income than what is

now received from their working the Lands, making no allowances at all for the risk of the Masters as to the crops, and Negroes." It is probable that, but for the invention of the cotton-gin and the consequent extension of cotton production, slavery would gradually have declined and disappeared through voluntary action.

111. Effect of cotton culture on slavery. — With the first development of cotton-growing, white labor was resorted to and was expected to prove adequate. The scarcity of such labor in the South, however, led to an early recourse to the use of slaves. The large slave-holders, too, eagerly seized the opportunity afforded by a new crop to employ their slaves in its production, for the former staple southern crops — indigo and rice — were declining in importance. As soon as the culture of cotton was undertaken by slaves on an extended scale, the social odium attaching to manual labor by a white man diminished still more the supply of free labor, and made cotton from that time on essentially a slave product. The same causes operated to repel immigrants from the southern cotton-fields, and made the South more and more dependent upon slave labor as the production of cotton became more important. The white farmers, who might have grown the cotton, either bought slaves themselves and became planters, or, tempted by the high prices at which they could sell their land, parted with their holdings and moved to the cheaper land on the frontier.

It has been frequently asserted by southern writers that the success of cotton culture depended upon the existence of a supply of slave labor, and that the two were indissolubly connected. While the introduction of slave labor into the United States had, as we have seen, no connection with the production of cotton, it is true that the development of cotton culture at this time gave new life to a decaying institution and furnished it with an economic reason for existence during the next half-century. But cotton would have been grown with free white labor, if slave labor had not been available.

112. Extension of cotton culture. — The movement towards abolition of slavery received a fatal check as soon as the cultivation of cotton was shown to be profitable in the South. The demand for slaves increased with the extension of cotton culture, and "side by side slavery and cotton pushed westward into the 'back country' of the Carolinas, across the pine hills and prairies of Georgia and Alabama, took complete possession of the alluvial lands along the Mississippi and Red rivers, and by 1860 were laying claim to the great central region of Texas." At the beginning, in 1791, South Carolina and Georgia were the only important cotton-producing States. By 1801 Virginia, North Carolina, and Tennessee produced a scant quarter, and ten years later Louisiana added a little to the total production, but South Carolina and Georgia still produced three fourths of the cotton grown in the United States.

The rapid rise in the price of cotton during this period greatly stimulated its production: from 14¼ cents a pound in 1790 the price steadily rose to 44 cents in 1799, owing to the increasing demand in England and at home; after this it declined to 19 cents in 1802, near which point it remained for the next six years. The stimulus thus given to the extension of cotton culture may be judged when these prices are compared with the estimate of Woodbury that where lands and labor were low, 2 cents a pound for cotton in the seed, or 8 cents when cleaned, would pay expenses. The production of cotton consequently increased from two million pounds in 1791 to forty-eight millions in 1801, and to eighty millions in 1807, while the exports rose from less than two hundred thousand pounds to twenty-one million and sixty-four million pounds respectively, for the same dates.

113. Growth of the slave-trade. — The increased demand for slaves to be used as hands in the cotton-fields led at first to an extension of the slave-trade and to fresh importations from Africa. Although the separate States had forbidden the traffic, the profits were so enormous as to encourage the growth of a vast illicit business. Finally, in December, 1803, South

Carolina, influenced no doubt by the great gains to be secured, repealed all prohibitory laws and threw open her ports to the slave-trade. Charleston became the most important slave-mart in the United States, and grew rapidly in wealth and importance; in size it was the fourth largest city and seemed destined for a brilliant future. New England traders carried on a large share of the traffic, and slave-ships were fitted out in Boston and New York; the voyages were usually made

DECK PLAN OF A SLAVE-SHIP

The men were ironed in pairs by the ankles, and men and women were compelled to lie on their backs on the deck with their feet outward, the irons on the men being usually fastened to the deck. The space "between decks" where they were confined was about 3 feet 10 inches high, and packed so close that a space of only 6 feet long and 16 inches wide was allotted to each slave. Here they remained while the human cargo was being collected (3 to 6 months) and during the passage across the Atlantic (6 to 10 weeks). In a tropical climate and under these conditions the mortality was frightful.

under the flag of a foreign nation. From 1804 to 1807 inclusive two hundred and two cargoes of negro slaves were taken into Charleston; of these, 8488 were sold for account of persons living in Rhode Island, Massachusetts, and Connecticut. On January 1, 1808, the constitutional restriction upon federal interference would expire, and on March 2, 1807, Congress by law prohibited the importation of slaves. The act was disregarded, however, as the punishment was insufficient — illegally imported slaves if captured were sold for the benefit of the State into which they were being brought — and a considerable illicit trade continued. Not until 1820 was the traffic made piracy, the penalty for which was death.

The restriction of the slave-trade, together with the growing demand for slave labor, forced up the price of slaves, which by 1815 was two hundred and fifty dollars a head. This demand was met by the sale of the slaves from the exhausted tobacco plantations of the border States; they were sent to the cotton regions by the tens of thousands.

114. Agriculture in the South. — The agricultural methods employed in this period were those which had come down from colonial days and were a wasteful kind of extensive agriculture. The land was cleared for cotton, as it had been for tobacco and corn, by girdling the trees and then burning them as they decayed and fell. Before the fields were ready for cotton a few crops of Indian corn or wheat would often be gathered. The ground was prepared and cultivated in a very primitive fashion, but few agricultural implements being used and those only of the rudest and strongest kind, such as even the most careless slave could not break. Fertilizers were but rarely used, not even the cotton seeds being returned to the soil, while rotation of crops was unknown.

Although cotton is said to be the least exhaustive to the soil of the great staple crops of America, such methods rapidly wore out the land. "Agriculture in the South," said John Taylor of Carolina, "does not consist so much in cultivating land as in killing it." The land was used until exhausted and then deserted for a fresh piece. Owing to the ease of moving his slaves, which constituted the greater part of his capital, the planter was ever ready to move on. It is evident that such a one-crop system required unlimited quantities of land, and this fact explains the steady westward movement of cotton culture for the next fifty years. How far the use of slave labor was responsible for the wasteful character of agriculture in the cotton regions it is impossible to say, but the relation between the two was intimate and southern agriculture showed no improvement until after the Civil War.

115. Agriculture in the North. — Little progress was made in agriculture until after the Revolution; this event directly

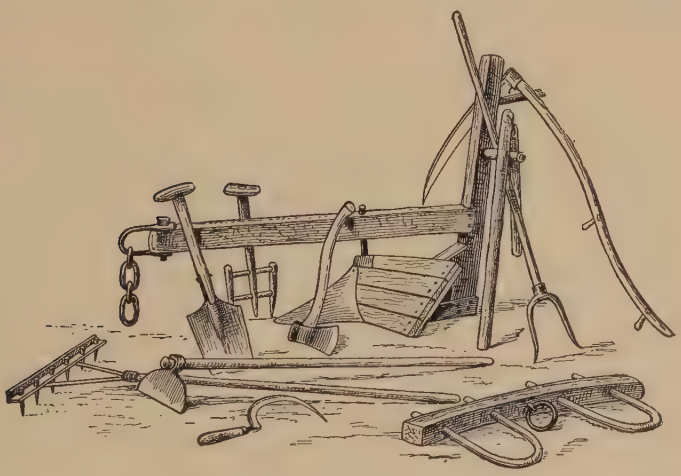
and indirectly brought about changes which materially affected American industry. Most of the effort of the farmers was still necessarily devoted to enlarging the cultivated area of their farms — clearing the ground and removing timber and stones. So long as no available market existed for surplus products, a suitable stimulus was lacking to secure improvement in existing methods. Nor was the mass of the farmers of that time especially enterprising or well educated. Strange as such a complaint sounds to us, foreign travelers in the United States in the last quarter of the eighteenth century are nearly unanimous in describing the idling and lounging of the people, which they seem to have considered a national vice.[1]

After the Revolution, the greater political freedom of the individual and the removal of restrictions upon foreign trade, together with the increased demand for our products during the continental wars abroad, greatly stimulated the interest in agriculture. The formation of societies for the promotion of agriculture was also an important step, for they awakened inquiry and intellectual activity and paved the way for agricultural literature. Five such societies were organized between 1785 and 1794 at Charleston, Philadelphia, New York, Massachusetts, and Connecticut. In 1776 less than forty newspapers were published in the country, none of them agricultural; but these societies published books, pamphlets, and papers, and thus prepared the way for the agricultural periodical and newspaper, which began early in the nineteenth century. By their meetings and publications the agricultural societies also secured a diffusion of the knowledge which had been acquired in the separate colonies and made repeated trials of the same thing less necessary; they also extended the use of improved implements and labor-saving machines.

116. Farm implements. — With the exception of plowing and harrowing, practically all farm operations at the end of the eighteenth century were performed by manual labor with the aid of very rude and relatively ineffective tools. In the

[1] H. Adams, Hist. of the U. S., vol. I, p. 56.

first census only one manufactory of agricultural implements was mentioned, a small establishment in Massachusetts which made annually 1100 rakes, valued at $1870; even as late as 1820 only a few small factories of plows, scythes, axes, shovels, hoes, etc., were enumerated. The plow at the time of the Revolution was of essentially the same form as that of the ancients, with wooden mold-board and clumsy frame. The first patent for a cast-iron plow in the United States was granted in 1797 to Charles Newbold of New Jersey, who, after



FARMING TOOLS, 1790

This meager list represents practically all the agricultural implements used by American farmers at the end of the eighteenth century. Notice the clumsy plow, with wrought-iron share, wooden mold-board, and heavy beam and handles; the wooden rake and fork; the primitive scythe, sickle, and flail. Great manual strength was necessary to use these tools, and the work was most exhausting.

spending, as he alleged, $30,000 in trying to get it into use, abandoned the attempt, the farmers declaring that iron plows poisoned the soil and prevented the growth of crops. The first really great improvement in the plow was the result of studies made by Thomas Jefferson on the shape of the mold-board. The introduction of the cast-iron plow into general

use, which was completed by 1825, marked an era in American agriculture and led directly to many other improvements.

Two other important agricultural machines which were introduced during this period were the grain-cradle for cutting the crop, the first patent for which was issued in 1803, and the fanning-mill for cleaning it after it was threshed, which soon superseded the old hand-fan. A beginning was also made in the application of chemistry to agriculture, but the development of a science of agriculture did not take place until after 1840.

117. Live stock. — In the southern states there grew up a considerable stock-raising industry in Virginia and Kentucky, especially the raising of mules to supply the cotton plantations. Washington early became interested in the mule as an animal well adapted to the climate of the South and able to endure the hard usage accorded all animals by negro slaves. Indeed, he may be said to have been the founder of the mule-raising industry in the United States. In the North several important developments in the live-stock industry began soon after the Revolution. American breeders began the importation of English Shorthorns and Herefords for the purpose of improving the native stock, though these great breeds had only recently been definitely established in England. Some of these cattle came to be known as the "milk breed" and others as the "beef breed."

The breed of horses was also improved by the importation from England in 1788 of Messenger, the famous sire of American trotters. Since the trotting horse is one of the very few distinctive breeds of live-stock which this country has developed, this event is noteworthy. It is supposed that the Conestoga horses, which later became famous as the freighters in western Pennsylvania, were developed during this period from some large Flemish horses which the Dutch had brought to New York. Oxen were still the principal work animals on the farm, though because of their slowness and clumsiness they gave way to horses as soon as horse-drawn farm ma-

chinery was introduced. With the importation of the first Merinos in 1793 noteworthy efforts were made to improve the breed of sheep. Great numbers of the famous Spanish sheep were thrown on the European market as the result of the Napoleonic wars, and enterprising American farmers began importing them, so that by 1809 there were 5,000 in the country.

118. Agricultural products. — The agriculture of the period under discussion was for the most part simply self-sufficing, though of some articles there was an exportable surplus. Of these tobacco was the most important until 1803, when it was passed by cotton, which thereafter constituted about one third of our agricultural exports. In New England hay was the most important single crop. The production of grains and live stock was greatly increased by the rapid settlement of the Ohio Valley; the population of Kentucky, Tennessee, Ohio, Indiana, and Illinois increased in the decade ending with 1810 from about 300,000 to 935,800. Most of the increase in foodstuffs was, however, consumed at home by the growing population. The total production cannot be stated, but there was, in addition to tobacco and cotton, a considerable export of wheat and flour, rice, Indian corn and meal, beef, pork, tallow, hams, butter and cheese, lard, live cattle, and horses.

VALUE OF AGRICULTURAL EXPORTS

Year	Vegetable Products other than Tobacco and Cotton	Animal Products	Tobacco	Cotton
1802.....	$12,790,000	.....	$6,220,000	$5,250,000
1803.....	14,080,000	$4,135,000	6,209,000	7,920,000
1804.....	12,250,000	4,300,000	6,000,000	7,650,000
1805.....	11,752,000	4,141,000	6,341,000	9,445,000
1806.....	11,850,000	3,274,000	6,572,000	8,332,000
1807.....	14,432,000	3;086,000	5,476,000	14,232,000
1808.....	2,550,000	968,000	26,000	2,221,000

The value of the exports from 1802 on, when statistics were first collected, is shown in the preceding table. It should be remembered, however, that owing to the Napoleonic wars abroad, the exports during these years were abnormally large; during the embargo and the War of 1812 they declined greatly.

A characteristic of the early years of the century was the concentration of farming upon the cultivation of the more profitable crops and the elimination of many which had long been under experiment. In New England and the middle States attempts were still being made to grow lucerne, vetches, rape, spelt, spurry, poppies, madder, woad, and similar crops, but the discussions initiated by the agricultural societies showed most of them to be unprofitable and their culture was now finally discontinued.

119. Causes of agricultural progress. — In addition to the condition already named, President F. A. Walker mentions[1] three other causes which he thinks were responsible for our great progress and pre-eminence in agriculture since the colonial days. First, the vast breadth of virgin lands, which required only the cultivation of the best soils. Second, the popular tenure of the land and excellent laws for the registration of titles and transfer of real property. Third, the fact that the agricultural class, unlike the body of cultivators in almost every country in Europe, had never constituted a peasantry, in any proper sense of that term. "The men who tilled the soil here were the same kind of men, precisely, as those who filled the professions or engaged in commercial or mechanical pursuits. . . . This state of things made American to differ from European agriculture by a wide interval. There was then no other country in the world . . . where equal mental activity and alertness have been applied to the soil as to trade and industry. But even more than the total effect of the fortunate conditions which have been indicated, American agriculture in those days owed its really remarkable power to

[1] The Making of the Nation, p. 66.

CONFLICTING LAND CLAIMS
OF STATES
1783
SCALE OF MILES
0 100 200 300 400 500
Longitude West from Greenwich
L. L. POATES ENGR'G CO., N.Y.
BRITISH POSSESSIONS
James Bay
Albany R.
L. of the Woods
L. Superior
Ceded 1784
Sault Ste. Marie
Mackinac
L. Michigan
L. Huron
Ottawa R.
Quebec
St. Lawrence R.
Montreal
TERRITORY IN DISPUTE
NEW HAMPSHIRE
VERMONT
NEW YORK
Portsmouth
Oswego
L. Ontario
Albany
Boston
MASSACHUSETTS
Detroit
St. Joseph
L. Erie
Hartford
CONN.
New Haven
Ceded 1785
MASSACHUSETTS
Ceded 1786
CONNECTICUT
Ceded 1800
PENNSYLVANIA
Pittsburgh
Trenton
NEW JERSEY
New York
Philadelphia
Baltimore
MARYLAND
Ceded 1784
Vincennes
Wabash R.
Missouri R.
St. Louis
Kaskaskia
Ohio Not Ceded
(KENTUCKY—ADMITTED 1792)
Cumberland R.
Richmond
Norfolk
Nashville
Raleigh
NORTH CAROLINA
Ceded 1790
Ceded 1787
SOUTH CAROLINA
C. Hatteras
Ceded 1802
GEORGIA
Savannah R.
Charleston
Savannah
OLD LINE OF WEST FLORIDA
DISPUTED BY SPAIN
Natchez
Alabama R.
Chattahoochee R.
TREATY LINE OF 1783
St. Marys R.
Pensacola
New Orleans
Mississippi R.
GULF OF MEXICO
ATLANTIC OCEAN
BAHAMA IS.

a special, almost a technical, quality of our people; namely, mechanical insight and invention."

120. Public lands and early land policy. — At the close of the Revolution the lands between the Alleghanies and the Mississippi River, which were ceded by England in the treaty of 1783, were claimed by seven of the original States. Their claims, based upon colonial grants, were confused and often conflicting, and led to dissensions, especially with the landless States. Owing chiefly to the insistence of Maryland, the States finally agreed to cede their rights to the western lands to the central government, and by 1802 the United States, which did not own a single acre of land in 1781, was in possession of an immense public domain of 333,108 square miles. Since that time it has been increased by annexation and purchase, and at the same time reduced by sale and gift.

In the disposal of the public land two distinct policies have been pursued by the United States. According to the first, which continued from about 1784 to 1820, it was held that the lands should be used and sold for the sake of revenue and to pay off the public debt. Under the second, which has obtained from 1820 to the present time, the western lands were to be disposed of — sold or given away — to settlers and others for the sake of developing the country. As a rapid disposal of the public lands and immediate revenue were desired at first, it was provided in 1785 that land should be sold only in large quantities; 640 acres was the minimum amount one person could purchase. Under this act a few large sales were made, all in the present State of Ohio, amounting by 1800 to 1,484,087 acres, or less than 100,000 acres a year. The effect was to concentrate the holdings in the hands of a few large speculators or proprietors rather than in the possession of actual settlers, and this policy was accordingly modified in 1800.

121. Sales on credit. — The act of May, 1800, and subsequent acts permitted the sale of land in minimum tracts of 160 and 320 acres, on credit, at the fixed price of $2 an acre.

ADDITIONS TO THE TERRITORY OF THE UNITED STATES FROM 1800 TO 1920

TERRITORIAL DIVISION	Year	Area added	Purchase price
		Square miles	*Dollars*
Louisiana purchase	1803	875,025	15,000,000
Florida	1819	70,107	(*a*)6,489,768
Texas	1845	389,795	.....
Oregon Territory	1846	288,689	.....
Mexican cession	1848	523,802	(*b*)18,250,000
Purchase from Texas	1850	(*c*)	10,000,000
Gadsden purchase	1853	36,211	10,000,000
Alaska	1867	599,446	7,200,000
Hawaiian Islands	1897	6,740	(*d*) 4,000,000
Porto Rico	1898	3,600	.....
Guam	1898	175	.....
Philippine Islands	1899	143,000	20,000,00
Samoan Islands	1899	73	.....
Additional Philippines	1901	68	10,00000
Panama Canal Zone	1904	426	10,000,000
Virgin Islands	1917	432	25,000,000
Total	.....	2,937,309	122,039,768

(a) Includes interest payment.

(b) Of which $3,250,000 was in payment of claims of American citizens against Mexico.

(c) Area purchased from Texas amounting to 123,784 square miles is not included in the column of area added, because it became a part of the area of the United States with the admission of Texas.

(d) Public debt assumed.

Under the influence of the credit provision, by which only one fourth of the purchase money had to be paid down, the rest falling due in three annual installments, large sales were made, amounting in the next twenty years to about 18,000,000 acres. Many of the purchasers were speculators and many were settlers who had assumed obligations beyond their ability to fulfil, especially during the hard times from 1808 to 1815. After that year the great rise in the price of cotton to 26 and

34 cents a pound led to still greater speculation in western lands, amounting to over five and a half million acres in the single year 1819. The fall in the price of cotton the following year and other causes led to another crash, and the arrears to the government for land sales grew to $21,213,350. Numerous relief acts had already been passed upon the demand of impecunious debtors, but in 1820 the matter was finally adjusted by allowing those indebted to the government to obtain the proportion of land already paid for by relinquishing the remainder to the United States. About 2,500,000 acres reverted to the government under these acts. Perhaps three-fourths of the settlers who moved west before 1820, however, had not purchased their lands at the public land offices, but had settled in regions like Kentucky or Tennessee, which had never come under the land system, or on land held under earlier titles, as in Ohio. These lands could generally be had for less than the minimum price of the public lands.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER IX

The problem of the South had been to find a profitable staple crop to take the place of the declining tobacco and rice culture. With the success of cotton growing the paramount problem became that of obtaining an adequate labor supply. In the North the problem was rather that of providing labor-saving devices and of eliminating unprofitable crops and processes.

1. To what extent had cotton been produced throughout the world before the introduction of the cotton gin? [Encycl. Brit., art. Cotton.]

2. Describe Whitney's cotton-gin, previous attempts, and his subsequent treatment. Do you think he was treated fairly? [T. Pitkin, Stat. View, 109; M. B. Hammond, Cotton Culture, 25–31; J. L. Bishop, Hist. of Amer. Manuf., II, 101; H. Thompson, The Age of Invention, 41–48; Encycl.]

3. Has any other product ever exerted such an effect on the development of any country as cotton on that of the United States? [J. A. B. Scherer, Cotton as a World Power.]

4. What progress had been made towards emancipation and abolition of slavery prior to 1793? [W. E. B. DuBois, Suppression of African Slave-Trade, chaps. 2–5; K. Coman, 116–120, 255; E. Ingle, Southern Side-lights, chap. 8; G. Livermore, Opinions of the Founders, 20–24, 36–44.]

5. Where were most of the slaves to be found in 1790? How were they treated? [As under question 4.]

6. Was the North interested in the maintenance of slavery, and if so in what way?

7. What was the provision in the Constitution prohibiting Congress from suppressing the slave-trade prior to 1807? Why was it inserted?

8. Describe the slave-trade as it existed before its prohibition by Congress in 1807. [DuBois, Suppression of African Slave-Trade; J. R. Spears, The American Slave Trade; J. B. McMaster, II, 15.]

9. Why did the population increase so much more rapidly in the free States than in the slave States?

10. What were the economic and social characteristics of the North and South at this time? [H. Adams, Hist. of U. S., II, chaps. 1, 2; McMaster, I, 17; II, 4–16.]

11. Give a picture of farming in New England at this time. [T. Dwight, Travels in New England and New York; Eighty Years' Progress, 27.]

12. What were the principal products of the United States during this period, and where raised? [T. Pitkin, Stat. View, chap. 4.]

13. What influence did the growth of agricultural societies have on the development of agriculture? [Eighth Census (1860), vol. Agric., xiii; Rep. of U. S. Com'r of Agric., *1872,* 282; Rep. of Conn. Bd. of Agric., *1880,* 98.]

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CHAPTER X

INTRODUCTION OF MANUFACTURES

122. Manufactures during the Revolution. — The course of industrial development was but little influenced by the events which immediately preceded and led up to the Revolution. The spirit of antagonism to the English colonial legislation and the desire to lessen our industrial dependence upon Great Britain had indeed somewhat curtailed the importation of luxuries two or three times before the outbreak of hostilities. With the closing of the port of Boston, the first Congress passed the only aggressive acts of that body — a resolution in 1774 calling upon the several colonies to cease importing British manufactures either directly from that country or from other places, and another in 1775 forbidding the exportation of American produce, except tobacco and rice, to Great Britain or her possessions. The Revolution itself had a more positive effect upon domestic manufactures than did non-importation agreements. During the Revolution the manufacture of various articles was greatly stimulated by the urgent demand for war supplies, by the interruption of foreign commerce, and by the high prices of a paper money régime. Especially was this true of the iron industry, of textiles, and of other articles of necessity.

At the outbreak of hostilities the colonies probably produced enough iron for civil requirements, but the withdrawal of labor for the army and other causes brought about a reduction in the manufacture of iron. The manufacture of steel, on the other hand, which had been suppressed by the act of 1750, made definite progress. Firearms had been manufactured during the colonial period and these were increased,

powder mills were established, and nails and other minor articles of iron and steel were produced in increasing quantities. The manufacture of paper, glass, and pottery had already shown some development by the opening of the Revolution, but were extended and perfected during the period of hostilities. Upon textile manufactures the direct effect of the Revolution "was mainly to increase the production of wool and cotton, to popularize the use of domestic fabrics, especially in the South, and to hasten the transition of homespun manufactures into household industries, organized by merchant employers and small manufacturers who supplied a commercial market." In general, the Revolution was a period of industrial expansion and of newly developed manufactures.

Upon the return of peace, these infant industries quickly languished, as they could not compete with the flood of cheap manufactures which were poured into the country by Great Britain. Political independence had been achieved, but industrially the United States were as dependent upon Great Britain as they had been while colonies. They continued to import most of their manufactured commodities from England and to devote themselves as before to agriculture and commerce. English manufacturers at this time possessed a monopoly of the new machinery which was revolutionizing the textile industry, and by securing the prohibition of its exportation prevented the growth of manufacturing in the United States, as they had previously done by the Navigation Acts.

123. The industrial revolution in England. — Beginning with about 1760 a remarkable series of inventions, especially in textile manufacturing, had completely revolutionized English industry. These inventions consisted of the application of machinery to spinning and weaving. Before 1764 all yarn used in the manufacture of textiles of all kinds was spun in single threads upon the domestic spinning-wheel, while the weaving was done upon the hand loom. Clumsy as was this instrument, it could weave cloth faster than the yarn could be produced, but between 1764 and 1780 spinning machinery

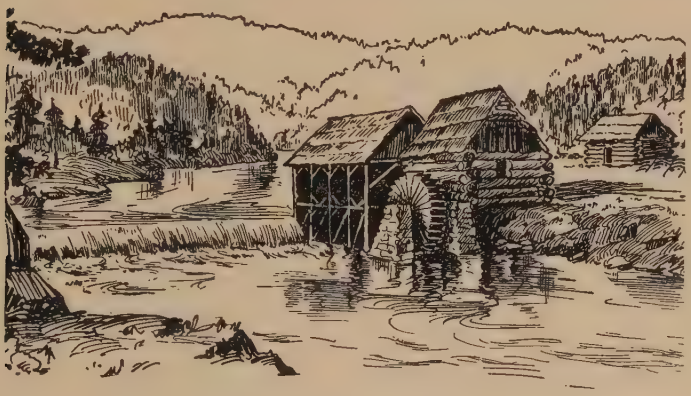
was perfected by Hargreaves, Arkwright, and Crompton, which made it possible to spin several thousand threads at once. The yarn could now be spun more rapidly than it could be woven, but in 1785 Cartwright invented a power loom, and the textile machinery was practically complete.

Up to this time textile mills had been located upon streams of water, from which power was obtained; the application of the steam-engine, which had already been used for draining mines and raising coal to the surface, as the motive power to drive the new machinery, made it possible to locate mills near the larger centers of population. The use of the steam-engine in mining also stimulated the iron industry, which could now obtain its supplies of fuel more cheaply.

124. England and the exportation of machinery. — Through the possession of these machines, England controlled the manufacture of cotton and woolen goods, for without them no country could hope to compete successfully with her. Parliament jealously guarded this monopoly and passed stringent laws prohibiting the exportation of machines, plans, or models. In 1774 the exportation of any tools used in the cotton or linen manufacture was made punishable by a fine of £200; this statute was extended in 1781 to woolen and silk manufactures, and imprisonment for twelve months was added to the penalty. In the following year the exportation of machinery used in printing cotton goods was forbidden under a fine of £500; this prohibition was also made to apply to tools used in the iron and steel industry. Seducing English operatives to emigrate was also severely punished. By these means, which were simply the application of mercantilist principles, Parliament hoped to secure to England the entire gain from the newly invented machinery and to make her the manufacturing nation of the world.

125. The introduction of machinery into the United States and attempts at manufacturing. — As a result of these obstacles the American manufacturers were compelled to smuggle or invent the new machinery, and it is a matter of

record that both methods were practised until most of the secrets of the English inventors were duplicated in the United States. As early as 1775 a spinning jenny after the Hargreave type was operated in Philadelphia, and in 1786 Robert and Alexander Barr, two Scotch immigrants, were granted $1000



FIRST MILL IN OHIO

This was the Wolf Creek Mill, built in 1789, about a mile above its junction with the Muskingum River. Owing to the scarcity of labor, grist-mills and saw-mills were a prime necessity in pioneer settlements and were early erected.

by Massachusetts to enable them to construct machines for carding, roping, and spinning wool and cotton. These machines were probably the first in the country based upon the Arkwright models. The first cotton factory in the United States was erected at Beverly, Massachusetts, in 1787, which was two years before Slater built his at Pawtucket, but it was a crude affair. It was followed soon after by others in Rhode Island, New York, and Pennsylvania. The power for all of these was probably furnished by horses. Several attempts to introduce manufactures were also made in the South and West.

American inventors were likewise busy: in 1783 Oliver Evans greatly improved the grain-mills and a few years later

invented the first double acting, high-pressure steam engine on record; Rumsey, Fitch, Perkins, and others added to the list of purely American inventions. On the whole, however, manufactures languished down to 1789 on account of the foreign competition and the inefficiency of the government at home. Indeed, the inability of Congress to provide properly, under the Articles of Confederation, for the regulation of our foreign commerce, and the irritating commercial legislation of the States, led to the calling of the Annapolis convention and the adoption of the Constitution.

126. The Constitution and the beginning of protection. — The year 1789 does not indicate any such break in the economic life of the people as it does in their political life. With the establishment of a more centralized government, however, an effort was made on behalf of the distressed "infant manufactures" of the time to obtain some protection from foreign competition.

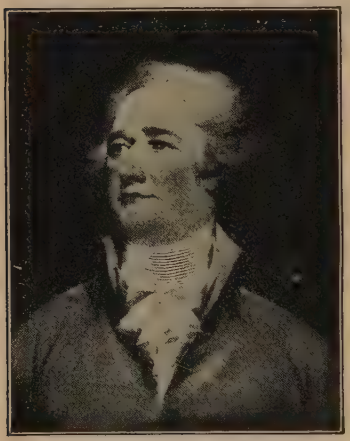
The second act passed by Congress under the new Constitution, on July 4, 1789, opened with the preamble: "Whereas it is necessary for the support of the government, for the discharge of the debts of the United States, and for the encouragement and protection of manufactures, that duties be laid on goods, wares, and merchandise imported; be it enacted," etc. While it seems clear that some measure of protection was intended by this act, the main purpose was revenue and the rates were very moderate, the average being only eight per cent. and the highest ad valorem duty fifteen per cent., which is the lowest scale of duties ever imposed by Congress in a general act. On the other hand, it must be remembered that the great distance and high freight rates afforded considerable additional protection. In addition to this and other tariff acts passed during the years 1789–1793, a tonnage act on foreign vessels and a discriminating duty on all goods not imported in American vessels gave further protection, but this time to American shipping rather than to manufactures.

127. The birth of the factory system. — Several attempts

were made in different places to introduce spinning by power, but the first complete cotton machinery was set up at Pawtucket, Rhode Island, in 1789, by Samuel Slater, called by President Jackson the "father of American manufactures." Owing to the stringent legislation against the exportation of machinery from England, Slater was compelled to make all the machinery used in this factory from memory. It was also necessary for him to train his workmen before he could operate the machinery, and for this purpose he set up a training school. Several writers of this period speak of the great progress that was being made in manufacturing. Brissot de Warville says, writing of his travels in the United States: "It is impossible to enumerate all the articles to which they have turned their attention; almost one half of which were unknown before the war. . . . The spinning machines of Arkwright are well known here and are made in this country."

In his famous Report on Manufactures, 1791, Alexander Hamilton described some seventeen industries which had already reached a considerable development, involving the collection of raw materials from various localities for the purpose of manufacturing, the division of labor, and the sale of the product in distant markets. The articles enumerated by him included manufactures of leather, iron, tools and machinery, textile goods, potters' wares, spirits, paper, hats, oil, sugar, hardware, carriages, tobacco, and gunpowder. "Besides manufactories of these articles, which are carried on as regular trades and have attained to a considerable degree of maturity, there is a vast scene of household manufacturing, which contributes more largely to the supply of the community than could be imagined without having made it an object of particular inquiry. Great quantities of coarse cloths, etc., . . . are made in the household way, and, in many instances, to an extent not only sufficient for the supply of the families in which they are made, but for sale, and even, in some cases, for exportation. It is computed in a number of districts that two thirds, three fourths, and even four fifths of all the cloth-

ing of the inhabitants are made by themselves." In 1789 Tench Coxe estimated the total value of American manufactures as "certainly greater than double the value of their exports in native commodities," or at about $50,000,000.



ALEXANDER HAMILTON

When Washington became president he appointed Hamilton secretary of the treasury. Although only about thirty-five years of age, he organized his department and soon put the finances of the government on a sound basis. He prepared numerous and valuable reports on the finances and other subjects, of which that on manufactures is one of the best known.

128. Importations of manufactures. — Most of the production was still carried on in the household or in small shops. The so-called factories were small and often short-lived. The movement in favor of manufacturing which showed itself in the passage of the act of 1789, received a serious setback in the next decade. A considerable import trade of textiles was developed from India and China and from Russia and Holland; importations from England were also largely increased. It was cheaper to buy imported goods than to manufacture them at home. On the other hand there was an increasing demand abroad for our agricultural staples, and the outbreak of the Napoleonic wars diverted our labor and capital into this channel and that of the carrying-trade. Twenty years later Albert Gallatin, the Secretary of the Treasury explained the slow growth of domestic manufactures in the United States during this period by the following reasons: the abundance of land, the high price of labor, the scarcity of capital, the greater profitableness of agriculture and commerce during the continental wars, and the continuance of old habits.

So slow was the growth of manufactures that in 1804, fifteen years after the establishment of the first cotton-mill by Samuel Slater, there were only four cotton factories in the country. Indeed, Great Britain supplied us with such a large proportion of our manufactured goods that when in 1806 it was proposed to cease intercourse with her, such a plan was pronounced impossible. "China, glass, pottery, hardware, cutlery, edged tools, blankets, woolen cloths, linen, cotton prints, and a hundred other articles of daily use came from Great Britain in such quantity that the value of each year's imports amounted to $35,000,000, and the duties paid on them to $5,500,000, or nearly one half of the entire receipts from customs." English and French outrages against our neutral shipping, however, required retaliation; the English Orders in Council and the Berlin and Milan decrees were soon followed by the Embargo Act, which prohibited American vessels from leaving the ports of the United States. This act may be regarded as closing the period of our colonial or formative life and ushering in the beginning of a national, organic industrial development.

129. The population in 1790. — The first census, taken in 1790, recorded a population of 3,927,214. This was evenly divided between North and South. Most of the people (about 69 per cent.) were native whites of English descent, for there had been little immigration of recent years, but there was also an admixture of various elements (about 12 per cent.); the Negroes made up the remaining 19 per cent. of the total population. The majority of the people still lived along the Atlantic seaboard, although the movement to the West was already beginning. At this time Virginia was the most populous state, followed by Pennsylvania, North Carolina, Massachusetts, and New York. Manufactures had not yet developed sufficiently to bring about the great development of the industrial states which was to follow the introduction of the factory system. The largest city in the country, New York, had a population of only 49,400, while Philadelphia, which ranked

second, had only 28,522, followed by Boston (18,320) and Baltimore (13,503); only 3.3 per cent. of the people lived in towns of 8,000 or more. The rural communities were largely self-sufficing, supplying their wants by farming and by household industries. In the seaboard cities there was considerable commerce, but inadequate means of transportation prevented foreign wares from penetrating far inland.

130. The condition of labor — As during the colonial period, the majority of the population was engaged in agriculture, and except in the South, where the greater part of the labor was performed by slaves, most of the agriculturists in the country were independent farmers. The wage-earners were chiefly artisans and were to be found almost entirely in the North; it is this class that is referred to in the discussion of the condition of the laborer. The Revolution made but little difference in his lot: after, as before, the ordinary unskilled workman earned on the average about two shillings a day; the hours of labor were from sunrise to sunset. While poverty was rare, the standard of living was low, and little beyond the bare necessities of life was obtained by the laborer in exchange for his wage. The westward migration and the development of the carrying-trade raised the pay of unskilled labor about the beginning of the nineteenth century to between 80 and 90 cents a day.

The picture of the home and clothing of a workingman about 1790, which is presented by McMaster, shows very unattractive conditions. "Sand sprinkled on the floor did duty as a carpet. There was no china in his cupboard, there were no prints on his wall. What a stove was he did not know, coal he had never seen, matches he had never heard of. . . . He rarely tasted fresh meat as often as once a week, and paid for it a price much higher than his posterity. . . . If the food of an artisan would now be thought coarse, his clothes would be thought abominable. A pair of yellow buckskin or leathern breeches, a red flannel jacket, a checked shirt, a rusty felt hat cocked up at the corners, shoes of neat's-skin set off by huge

buckles of brass, and a leathern apron, comprised his scanty wardrobe. The leather he smeared with grease to keep it soft and flexible." The workers of this period had, moreover, little intellectual stimulus; the environment was local and there was little contact with the outside world.

131. The lack of labor organization. — As yet, little or nothing had been done to protect the rights of the laborer by legislation. He was paid at irregular intervals, and if not paid at all was unable to secure his dues by a lien on the product of his labor. The laws of debt were particularly harsh: for indebtedness in even the smallest sum a man could be thrown into prison and kept there until his debt and the prison charges were paid. The wage-earner without property did not possess the right to vote or to hold office, and consequently could not exert any political influence to force legislation in his behalf. But in spite of these conditions there was no labor movement. There were isolated organizations of laborers in a few of the more skilled and centralized trades, as the printers in 1786 and the cordwainers in 1794 in New York and Philadelphia. Occasional strikes occurred and these were followed by trials for conspiracy, but not until 1827 was there a general movement by all branches of labor. Some of the earlier organizations seem to have been formed for purely benevolent purposes, but all of them were confined to the skilled workers; the unskilled laborers remained inarticulate and unorganized. Consequently, labor was unable to exert any influence upon legislation during this early period. The economic environment of a new country led moreover to extreme emphasis upon industrial individualism.

132. Summary. — The restrictions placed by Great Britain upon the economic development of the American colonies led almost inevitably to the Revolution and the severance of the political ties between the two countries. After the achievement of political independence the expectation of the colonists was still that they would remain an agricultural community and would carry on a mutually advantageous trade with

English manufacturers, exporting raw materials in return for manufactured commodities. The realization of this ideal was prevented largely by England's own restrictive policy, which made trade on equal terms between the two countries impossible. A movement began for closer economic union between the States, which had hitherto stood jealously apart, and for the attainment of national economic independence.

Effective prosecution of this policy was barely beginning when the outbreak of the Napoleonic wars in Europe offered opportunities for profit in commerce and agriculture which caused the diversion of all energies into those channels. While engaged in this neutral trade the United States was forced, in defense of its rights upon the high seas, to take up arms again, and it chose to do so against Great Britain. By the conclusion of the War of 1812, the United States may be said to have attained practically complete commercial independence. The struggle for national industrial independence, which was inaugurated by the suspension of foreign trade during the embargo and the War of 1812, characterizes the next period rather than this one.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER X

During the Revolution the problem of manufacturers in the United States was how to meet the new demands upon them; after the war it was rather how to meet the competition of machine-made British goods. It became necessary for the government to establish an economic policy. The labor problem as yet was one of adequate production rather than of hours and wages.

1. Did the form of government under the articles of Confederation have any effect on industrial development? How? [W. C. Webster, Gen. Hist. of Com., 338–341; A. B. Hart, Hist. told by Contemp., III, chap. 6.]

2. What was the "industrial revolution" in England? [A. Toynbee, Ind. Rev. in Engl.; G. T. Warner, Landmarks, 262–300; E. P. Cheyney, Introduction, 199–239; L. Price, chap. 9; L. Seager, Intro. to Econ., 12; S. J. Chapman, The Lancashire Cotton Industry, chaps. 2, 4.]

3. Why did England develop manufactures at this time rather than France or Holland or Germany. [W. C. Webster, Gen. Hist. of Com., 211–217; J. A. Hobson, Evol. of Mod. Cap., 72–81.]

4. Was the prohibition of the exportation of machinery by England wise? Is it practised to-day by any nations? Why? [C. D. Wright, Ind. Evol. of U. S., chap. 4; J. L. Bishop, I, 376–378.]

5. What difficulties did Samuel Slater have in introducing new machinery into the United States, and how did he overcome them? [Wright, Ind. Evol., 125; also in B. Rand, Econ. Hist., 311; J. L. Bishop, I, 402–403; G. S. White, Memoir of Samuel Slater.]

6. What was the Annapolis Convention, and why was it called together? Did it accomplish anything? [J. Fiske, Crit. Per., 216; H. W. Elson, Hist. of U. S., 324; A. C. McLaughlin, The Confed. and the Const., 179–182; A. B. Hart, Hist. told by Contemp., III, 185–187.]

7. Was protection intended in the tariff of 1789, or was it purely for revenue? Give reasons. [R. W. Thompson, Hist. of Tariff, chap. I; V. Rabbeno, 117–126; E. Stanwood, I, chap. 3; H. C. Adams, Taxa. in U. S., 1789–1816, 14–34; K. Coman, 138–144; W. Hill, First Stages.]

8. What clause in the Constitution gives Congress the power to levy a protective tariff?

9. What was the condition of manufactures in the United States in 1791, according to Hamilton's report? [A. Hamilton's Works; also in F. W. Taussig, State Papers and Speeches on the Tariff, 79–103; Annals of Congr., 1791–1793, 971–1034; U. Rabbeno, 289–324.]

10. What advantages did Hamilton think would result from their establishment in the United States? [Taussig, State Papers, 15–62; as above.]

11. What caused the so-called whiskey insurrection of 1793–5? [J. S. Bassett, The Federalist Syst., chap. 7; F. C. Howe, Taxation in U. S.; Morse, Alex. Hamilton, II, chap. 4; J. B. McMaster, History, II, 189–203.]

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PART III

THE INDUSTRIAL REVOLUTION AND THE WESTWARD MOVEMENT (1808–1860)

CHAPTER XI

THE DOMESTICATION OF THE FACTORY SYSTEM

133. The American industrial revolution. — The year 1808 may be taken as a convenient line of demarcation to distinguish the period of industrial dependence of the United States upon European countries from that of industrial self-sufficiency and diversified internal development. Colonial habits and occupations had predominated after the Revolution much as they did before it. In spite of various efforts at manufacturing the country had remained largely agricultural and commercial. But with the passage of the Embargo Act, the Non-Intercourse Act, and finally the outbreak of the War of 1812, foreign trade was greatly hindered if not destroyed and the country thrown back upon its own resources. The domestic production of various commodities, which had previously been imported from England, was enormously stimulated by this period of restriction, and establishments for the manufacture of cotton and woolen goods, iron, glass, hardware, and other articles sprang up with mushroom rapidity all over the country. As a result of this growth there developed a strong movement for protection, to which was joined later the demand for internal improvements and the rapid disposal of the public lands; a comprehensive policy was thus formulated for the development of the resources of the country. The realization of this program was achieved by improvements in manufactures and in the means of communication, and especially

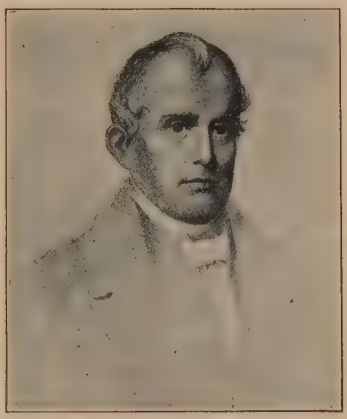
by the spread of cotton culture into the Southwest. It was an industrial revolution which completely changed the course of internal development in the United States, and while many years were necessary for it to work itself out, the beginnings may be conveniently marked by the year 1808.

134. The growth of manufactures. — The condition of manufactures at the beginning of the restrictive period may be seen from a report made by Gallatin, the secretary of the treasury, in 1809. According to this, the production of the following commodities was "adequate to the consumption of the United States": manufactures of wood, leather, soap, and tallow candles, spermaceti oil and candles, flaxseed oil, refined sugar, coarse earthenware, snuff, hair powder, chocolate, and mustard. In addition to these, the following enterprises, which were chiefly of recent development, were firmly established and supplied a considerable part, if not most of the articles consumed: iron and its manufactures; manufactures of cotton, wool, flax, and hemp; hats; paper, printing types, printed books, and playing cards; spirituous and malt liquors; gunpowder; window glass; jewelry and clocks; manufactures of lead; straw bonnets and hats; wax candles. The total annual product of American manufactures was estimated to exceed $120,000,000. This industrial development was approved of by Gallatin and by other statesmen of this time, not merely for its own sake, but also because of the home market which it created for agricultural products and raw materials, which he estimated as "not very inferior to that which arises from foreign demand."

The census of 1810 returned the manufactures of the country as $198,613,474, of which the manufactures of textiles, iron, leather, and liquors made up about one half. While these figures are not altogether trustworthy, they serve to show in some degree the extent to which manufactures had developed during this period. Finally, in 1816, Mr. Dallas, the secretary of the treasury, made a report in which he described the industries which had grown up during the war; of these

the principal ones were textiles, manufactures of iron and hardware, and liquors.

135. The textile industries. — The greatest development took place in the textile industries, especially in New England, where the capital previously invested in shipping and rendered idle by the embargo and the war was now diverted into manufacturing. In 1804 there were but four cotton factories in the country; five years later there were fifteen with 8000 spindles; by 1811 the number of spindles had increased to 80,000, and by 1815 to 130,000. The consumption of raw cotton by domestic manufacturers shows the same expansion. The figures were as follows: in 1800, 500 bales; 1805, 1000 bales; 1810, 10,000 bales; 1815, 90,000 bales. In this last year the capital invested in the combined cotton and woolen industries amounted to about $50,000,000. A still further impetus was given to this industry by the introduction of the power loom in 1814 by Francis C. Lowell. He for the first time brought the various processes of spinning and weaving under one roof, in his factory at Waltham, Mass., which has therefore been called "the first complete factory in the world." While many of the textile mills had improved machinery, most of



SAMUEL SLATER

Slater learned the business of cotton spinning as an apprentice in Arkwright's firm, but having heard of the bounties offered in the United States for the introduction of English machinery, he emigrated to New York in 1789. As the exportation from England of all machinery, models or plans was forbidden, he was compelled to memorize all the mechanical details. Upon his arrival in the United States he went to Pawtucket, R. I., where in 1789 he succeeded in building a mill and equipping it with the new textile machinery, constructed entirely from memory. The cotton manufacture of the United States dates from that time.

these earlier factories were poorly constructed and equipped, and turned out only the coarser grades of products. The factory system spread rapidly, however, and factory towns sprang up on the streams of New England and in the middle States. Lowell, Lawrence, Holyoke, Fall River, Cohoes, and Paterson are examples.

136. The return of peace. — Upon the conclusion of peace it was expected that things would return to much the same status as before. Importations of foreign commodities grew greatly: in 1814 they were but $13,000,000 and in 1816, $147,000,000. The pent-up goods of English manufacturers were fairly poured into the country, where they were sold at low prices and on long credit. American merchants and consumers welcomed this stream of European luxuries and foreign wares, but to the manufacturers these enormous importations meant disaster if not ruin. At first, however, agriculture and commerce found such large foreign demand for their products that the complaint of the manufacturer was unheard amid the general rejoicing. The demand for American cotton by English cotton mills was insatiable and drove the price to new heights. Short crops abroad created a demand for our agricultural foodstuffs, while the increased imports and exports furnished remunerative business for American shipping. The true state of affairs was concealed by the high prices resulting from a disordered currency, but in 1818 the currency bubble was pricked and prices fell rapidly to a normal level. At the same time the position of both agriculture and shipping was made less secure; the English corn law of 1815 raised the duty and virtually excluded American grain from that market, while our commerce was prevented from expanding by the commercial restriction imposed upon it by England, France, Holland, and other European countries. As the foreign market was cut off there grew up a demand for the development of a home market; it was seen that we must be more self-contained. At the same time the struggling manufacturers were demanding protection against foreign importations.

137. Spread of the factory system. — The factory system of manufacture may be said to have obtained its first foothold in the United States during the restrictive period after the embargo. By the factory system is meant the concentration of all the processes of manufacture in a factory, involving their withdrawal from the household and shop where they had previously been carried on; it involves also the use of non-human power and the organization of the workers under skilled management, for stipulated wages and fixed hours, with production for the general market and not upon order. The period was distinctly one of "industrial transition"; the use of machinery, which characterizes the modern system of manufactures, spread gradually. After the introduction of the power loom the manufacture of cotton and woolen goods passed rapidly from the household to the mill; but the domestic and neighborhood methods of production continued to predominate, even in these industries, down to about 1830.

138. The culmination of the small industry. — New industries soon developed, machinery was employed more and more, and American manufacturers were prompt to adopt new industrial methods. There was a wide diffusion of petty manufacturing and mechanical establishments in every settled part of the country and a rapid increase in the total number of such enterprises. The census of 1840 showed probably the greatest development of small manufacturing industries which the country has ever seen; after this period concentration and combination reduced the number of establishments, not only relatively to the population, but in some industries, as cotton and steel, even absolutely. The tendency to diffusion of manufacturing establishments as the population spread out over a wider territory was not as yet counteracted by the movement towards concentration, which followed the improvement of transportation facilities.

139. Economic independence. — But not merely was the period one of industrial development; the nation was rapidly becoming economically independent and was almost self-

sufficing. In 1834 the total value of all commodities manufactured annually in the United States was calculated at $325,000,000, while that of imported goods — with the exception of tea, coffee, wines, and spices, which the United States did not produce — was less than $50,000,000. At the same time the proportion of the population engaged in manufactures was steadily growing. In 1787 Tench Coxe had estimated that less than one eighth of the population was engaged in manufactures, fisheries, navigation, and trade; the census of 1820 returned 13.7 per cent. of the working population as engaged in manufacturing and the mechanic arts; in 1840 the percentage was 17.1. It is impossible to give any complete statement of the growth of manufactures during this period, as no adequate statistics were collected until 1850.

The following table shows the important facts for the years 1850 and 1860:

GROWTH OF MANUFACTURES (including lumber and fisheries)

Year	Number of Establishments	Capital	Number of Employees	Cost of Raw Materials	Value of Products
1850	123,025	$533,245,000	957,059	$555,124,000	$1,019,017,000
1860	140,433	1,009,856,000	1,311,246	1,031,605,000	1,885,862,000

Products of small shops and establishments producing less than $500 each yearly were not included; but this domestic or hand industry probably amounted to $100,000,000 more. Six sevenths of the manufactures in 1850 were produced in fifteen States, chiefly in New England, which from the beginning had taken first rank as the seat of the manufacturing industries. New York at this time, however, held first position; Massachusetts and Pennsylvania were next in order. The particular industries were generally diffused throughout the whole country, though even at this early date there was some localization: bonnets and straw goods, boots and shoes,

and cottons were concentrated largely in Massachusetts; hardware and rubber goods in Connecticut; coal and iron in Pennsylvania; calicoes in Rhode Island; turpentine in North Carolina; lard in Ohio; and lead in Wisconsin. The largest single manufacturing industry — flour and meal — was closely allied to agriculture; indeed, many industries were but one or two degrees removed from the extractive industries. Flour and meal was the only industry which produced over $100,000,000 annually; three others — namely, boots and shoes, cottons, and lumber — produced over $50,000,000 each; while clothing, machinery, leather, and woolens amounted to between $25,000,000 and $50,000,000.

140. The patent system. — Foremost among the causes of our industrial growth must be mentioned the patent system of the United States, under which the number of inventions patented had steadily increased from 306 in the decade ending in 1800 to 5942 in the decade ending in 1850, and to the then enormous number of 23,140 in the following ten years. In 1849, for the first time, the number of patents issued in a single year passed the one thousand mark, and only three times afterwards fell below that number. The annual number steadily increased until in 1860 it reached 4819.

Provision was first made by Congress in 1790 for giving to inventors the exclusive right to their discoveries. The term for which a patent was valid was fourteen years, and after 1836 an extension of several years was permitted in certain cases; in 1870 the original term was extended to seventeen years. This term is longer than that granted by the patent law of any other country. Every patent contains a grant to the patentee of the exclusive right to make, use, and vend the invention or discovery throughout the United States, and is granted on filing a claim and specifications and paying certain small fees. Patents are also granted for designs and trademarks as well as for machines.

141. Directions of inventive activity. — Most of the inventions for which patents were issued during this period con-

sisted of labor-saving devices, the application of machinery to industrial processes, and new processes which simplified methods and reduced cost. Periods of depression, such as that following the panic of 1837, have generally resulted in a stimulation of inventive genius and a large increase in the number of patents. But the inventions of this period were not merely of new machinery; they were largely of a utilitarian character and included many of the improvements which have raised the general standard of comfort in this country. "They related to improvements in looms for producing figured fabrics; to air-heating stoves, cooking stoves, musical instruments, firearms, sewing machines, printing presses, boot and shoe machinery, rubber goods, floor cloths, and thousands of other inventions tending to raise and improve the standard of living of the people."

The following extract from an inquiry made by the House of Commons in 1841 gives an English view of Yankee inventiveness: "I should say that the greatest portion of new inventions lately introduced in this country have come from abroad. . . . I apprehend that a majority of the really new inventions, that is, of new ideas altogether in the carrying out of a certain process by machinery, or in a new mode, have originated abroad, especially in America."

The magnetic telegraph, invented in 1835, was first practically applied in 1844, and in 1846 the sewing machine was invented — two of the most important inventions of the half century. The manufacture of American edge tools began; the invention of planing machines revolutionized woodworking; in 1842 the Nasmyth steam hammer was invented, and in 1847 the rotary printing press. Piece by piece, in response to industrial needs, the mechanical appliances were being perfected which made possible the enormous production of the completed factory system and its operation under skilled and centralized direction.

142. Other factors of industrial progress. — Other factors which aided in the industrial development of this period were

the growth of population, the increase in immigration, the extension of railways, the abrogation of the English corn laws, the discovery of gold in California, and the taking up of western lands. The mere growth in numbers led to a considerable expansion in manufacturing, by adding to the number of workers and by creating a vastly increased demand for the products of American manufactures. Not only was the West built up and its marvelous resources made productive, but the population in the eastern manufacturing cities increased rapidly. While the total population of the country increased from 7,239,891 in 1810 to 31,443,321 in 1860, the number of cities of 8000 inhabitants and over rose from 10 to 141, and the urban population from 4.9 per cent. to 12.5 per cent. of the whole. Such an increase in numbers alone would have greatly influenced our industrial growth, but at the same time there was going on a territorial expansion and development of the western territory that added greatly to the wealth of the country. The abrogation of the English corn laws in 1846, by opening a profitable market to the American farmer, made him a better purchaser of manufactured goods.

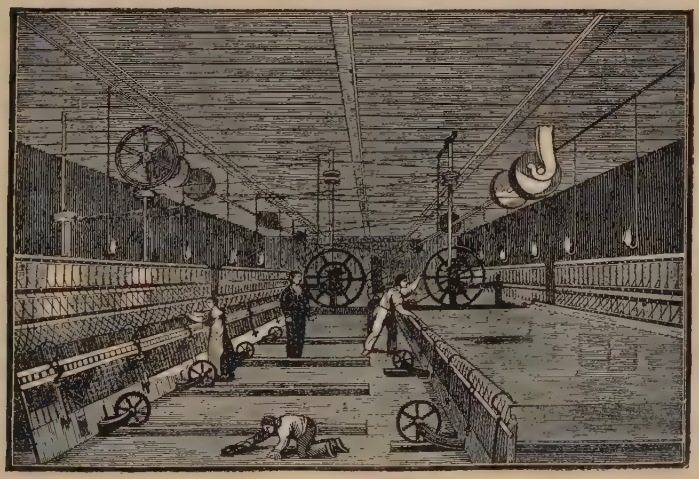
143. General prosperity. — There is general agreement among all writers as to the great industrial advance made in the United States during this period; after the panic of 1837 it was a time of solid prosperity and steady, continuous progress. Sumner calls this period "the golden age." During the two decades from 1840 to 1860 the wealth of the people of the country increased 126 per cent, and with it the general well-being of the people, so that comfort was widespread and pauperism almost unknown. The wealth of the country was as yet very equally distributed; if the poor were few, the number of the very rich was still smaller. Near the end of this period, Sir Morton Peto wrote of this point: "On their return from the United States travelers are not infrequently asked what feature struck them most favorably in their journey through the country. Looking to the territory, I

should certainly answer to such a question, its wide expanse and its abundant resources; but looking to the people, I should say, *the absence of pauperism.* Nothing is more striking to a European than the universal appearance of respectability of all classes in America. You see no rags, you meet no beggars."

The prosperity of this period was interrupted by the two panics of 1837 and 1857. The former was occasioned by over-investment of fixed capital in internal improvements, by land speculation, and by bad banking. The latter was due to speculation, over-expansion of bank credit, and too rapid investment in factories and mills, with consequent increased output of goods. But the country quickly recovered from the resulting depression, and the census returns of 1860 showed no effects from this cause whatever.

144. Cotton manufactures. — A clearer idea of the development of manufactures during this period may be obtained if there is traced in more detail the history of the two most important manufacturing industries in the United States at this time — cotton and iron. The cotton industry, and particularly the factory method of production, received a great impetus from the introduction of the power loom in 1814; before this only the spinning had been done by machinery, while the weaving was done at home by the hand loom. Immediately after the war, the immense importation of foreign goods seriously embarrassed the cotton manufacturers, but, partly as a result of protection granted by successive acts from 1816 on, and partly from other causes, the industry soon became profitable again. By 1824 cotton manufacturing was firmly established; its further development was one of steady growth. In that year Webster stated, "In some sort of fabrics we are already exporting, and the products of our factories are at this moment in the South American markets." The fall in the price of cotton cloth after factory weaving began was remarkable. "In 1815, when cotton cloth was still woven chiefly by hand — the family weaver finishing only four yards of cloth a day — the price of ordinary cloths for sheeting was

forty cents a yard. In 1822 it had fallen to twenty-two cents, and in 1829 to eight and one half cents." In 1850, when the factory manufacture had completely abolished the old-time system, and when the power loom was in full operation, the price was reduced to seven cents a yard as the result of machine labor. That this change of price was due chiefly to the use of machinery, and not so much to a fall in the price of cotton, is evident from a comparison of the prices of cotton and of cloth.



SPINNING ROOM IN SLATER'S MILL, 1830

Samuel Slater built his first mill in 1789 and equipped it with 72 spindles and three carding machines built on the Hargreaves and Arkwright models. The above cut shows his mill in 1830 with the most improved spinning machinery. A mule spinner, carrying 300 spindles, could be operated by a single person, who could thus, with the aid of machinery, accomplish as much as 300 girls spinning by hand a single thread at a time on the old-fashioned spinning wheel.

From the beginning, the cotton industry led all other manufactures in the amount of capital invested, the number of persons employed, and the value of the product. In 1830 the United States was second only to England in the amount of

cotton consumed, and exceeded by England and France alone in the number of spindles. The industry was early localized in the New England States, especially Massachusetts; three fourths of all the cotton goods produced in 1840 were turned out by New England mills. In spite of the great improvements in this branch, however, the cotton factories were but crude affairs compared with those of today; according to Bishop not one in a hundred factories in the United States was provided with steam, while in England three fourths of all the factories used steam as a motive power. By 1850 the industry had grown so in New England that the ratio of spindles to the population was slightly greater than in Great Britain; to each 1000 of the population it was respectively 1008 and 1003. And during the next decade the number of spindles increased faster than the population. By 1860 cotton manufacture had reached a high stage of development. Six sevenths of the cotton goods used in this country were made here, only the finer grades being imported to the amount of about $25,000,000 annually. There was already an exportation of cottons to the Orient, amounting to six or seven million dollars' worth yearly, and the outlook for a large expansion of trade seemed promising.

The progress of cotton manufactures is shown statistically in the following table:

COTTON MANUFACTURES, 1805–1860

Year	Number of establishments	Capital	Number of employees	Number of spindles in factories	Raw cotton consumed (pounds)	Value of manufactured product
1805	4	.....	.....	4,500	11,000,000	.....
1815	..	$40,000,000	100,000	130,000	27,000,000	$24,300,000
1831	795	40,614,984[1]	62,157[1]	1,246,503	77,757,316	26,000,000
1840	1240	51,102,259	72,119	2,284,000	126,000,000	46,350,453
1850	1074	76,032,578	94,956	3,634,000	.....	65,501,687
1860	1091	98,585,000	120,000	5,235,727	422,704,975	115,681,774

[1] For 1830

145. The production of iron. — The course of events in the production of iron was so similar to that already described in regard to textile manufactures that it need not be referred to at length. During the period from 1808 to 1815 importations were cut off and a great increase in the production and manufacture of iron took place. After the conclusion of peace successive tariff measures granted considerable protection to the iron industry, and by 1824 the pig iron product probably exceeded 100,000 tons annually. As long as pig iron was smelted with charcoal the United States, with its inexhaustible forests at the water's edge, had a great advantage, and during the colonial days had exported considerable pig iron to England. But the use of bituminous coal, the invention in 1837 of the hot-air blast, and improved machinery, had reduced the cost in England below the expense of producing charcoal iron in this country. As the forests were cut down and wood became scarcer the cost of production kept increasing. The iron furnaces were necessarily small affairs and produced from two to four tons a day. About 1840 the iron trade in this country was revolutionized by the substitution of anthracite coal for charcoal.

146. The use of anthracite coal. — The use of anthracite had long been known: as early as 1769 an ingenious blacksmith in the Wyoming valley is reported to have used it locally, and some years later several " ark " loads were floated down the Schuylkill to Philadelphia. The difficulties of transportation, however, prevented its general use. Gradually its possibilities became known; in 1825 the first successful attempt was made to generate steam with anthracite coal, and in 1837 the first furnace for smelting iron with anthracite was built. The real development took place after 1840. But even in the decade 1830–1840 the improvement in the means of communication by the building of railroads made the deposits available, and at the same time created a demand for iron.

After the introduction of anthracite as fuel other improve-

ments began to be made: the necessity of improving the blast soon led to the application of steam instead of water power to the blowing of American furnaces; the combustible gases emitted from the furnaces were also used to heat the blast. About 1850 the use of coke began in the United States, and a little later uncoked bituminous coal was used. These did not assume much importance, however, until after 1860, and did not surpass anthracite as fuel until 1875.

147. Manufactures of iron. — The use of anthracite stimulated not only the production of pig iron, but also iron manufactures. Rolled iron, which had previously been imported, was produced in this country after 1844, when anthracite began to be used in puddling and other processes, and by 1856 its production had reached nearly 500,000 tons a year. Up to 1844 there were practically no facilities for manufacturing the iron rails needed for the 4185 miles of railroad in the United States, and until the tariff act of 1842 they were imported from England free of duty. Beginning with about 1844, however, iron rails were made in this country, and with the exception of a temporary setback in 1857 showed substantial progress up to 1860, when 205,000 tons were produced.

It is clear from these figures that the iron industry of the country was only in its infancy and that the inexhaustible mineral resources of the country were as yet practically undeveloped. Nevertheless, in 1860, there was produced pig iron to the value of $20,870,120; forged, rolled, and wrought iron to the amount of $36,537,259; and cast iron of all kinds to the amount of $36,638,073. Even more important was the manufacture of machinery, which was turned out in this same year to a value of over $50,000,000, in addition to $17,000,000 of agricultural implements, $11,000,000 of hardware, and $3,000,000 of edged tools and axes.

148. Other manufacturing industries. — The important industries which were developed during this period, the value of whose product in 1860 exceeded $15,000,000, were the following, given in order of importance; flour and meal, cotton goods,

sawed lumber, iron and its manufactures, boots and shoes, men's clothing, leather and skins, woolen goods, miscellaneous machinery, sugar refining, provisions, printing and publishing, carriages, distilled liquors, furniture and cabinet wares, tobacco and snuff, malt liquors, paper, soap and candles, oil, agricultural implements, bread and crackers, hats and caps, tin, copper and sheet iron, marble and stone work. A brief survey of the foregoing list shows that many of the most important so-called manufactures at this time were closely allied to the extractive industries; the development of pure manufactures on a large scale did not occur until some time after the Civil War. In this connection two industries are deserving of special mention, as they were peculiarly characterized by the application of machinery to their methods of production, with resulting revolutionary changes therein. These were the men's ready-made clothing and the boot and shoe industries; their machine production was peculiarly an American development and was made possible by the invention of the sewing machine. In the manufacture of brass clocks there was an equally striking evidence of the ingenuity of American manufacturers; the parts were stamped out by machinery, and for cheapness and excellence were without rivals. The distribution of miscellaneous manufactures was fairly general throughout the country, every State being represented; New York, Pennsylvania, Massachusetts, and Ohio led in the value of output, in the order given.

149. Tariff from 1816 to 1824. — When the conclusion of peace in 1815 opened the ports of the United States to foreign importations it was generally felt that the industries which had grown up during the period of restriction were entitled to a fair measure of protection. Accordingly a general tariff bill was enacted April 27, 1816. The new textile industries, which were especially threatened by English competition, were granted a duty of 25 per cent. until 1819, and after that 20 per cent. Other goods, such as hats, cabinet wares, manufactured wood, carriages, leather and its manufactures, paper,

and sugar, were also given a measure of protection. This act has usually been considered as the beginning in the United States of the protective policy. While the earliest tariffs may have given protection, it was strictly incidental to revenue purposes, but here, for the first time, industrial and not fiscal needs determined the choice of articles and rates. There was, however, also the necessity of greater revenue for the payment of the heavy debt which had been contracted during the war. The debate on the tariff of 1816 was based on the broad question of the relative merits of free trade and protection; since then the discussion has more and more become a contest over individual commodities or the scale of rates. The vote on the measure, too, was by no means sectional; even the South this time voted for protection. After this measure successive acts extended the protective policy: the act of 1818 granted protection to the iron industry and extended the 25 per cent. duty on cottons and woolens until 1826.

150. Tariff from 1824 to 1842. — In 1824 the list of protected goods was greatly expanded and made to include wool, iron, hemp, lead, and glass, in addition to textile manufactures; duties were also raised on silk, linens, cutlery, and spices. In this act protection was given agricultural extractive interests of the western and middle States, which were won over by the "home-market" argument.

This section was now the stronghold of the new movement; the South had already changed her attitude and taken a strong stand against it, while New England was divided. Agitation for still higher protection, headed by the woolen manufacturers, led to the passage of the act of 1828, which may be said to represent the high-water mark of protective legislation before the Civil War. It was passed by the aid of New England, where the manufacturing now outweighed the shipping interests, but led to bitter opposition in the South.

The abominations of the act of 1828 led to a reaction which found expression in the moderate policy of the tariff of 1832, practically restoring rates to where they had been in 1824.

This soon gave way in turn to the so-called compromise tariff of 1833. The determined opposition of the South, culminating in the nullification program of South Carolina, required concessions from the extreme protectionists of the North. As finally passed, the act of 1833 provided for a gradual reduction of all duties exceeding 20 per cent. in the tariff of 1832 to a general level of 20 per cent.; by 1842 the reduction had actually taken place.

151. The tariff, 1842–1846. — The panic of 1837 and other causes had brought about a serious decline in the government revenues, and to meet this deficiency it was thought best to raise the tariff duties again. A tariff act was therefore passed in 1842 restoring duties to about the level of 1832. It was thus decidedly protective in character. Very high rates were placed upon those articles which it was desired to protect, as cotton bagging, window glass, cut nails, refined sugar, and especially iron, upon which the duties were as high as 77 per cent. At the same time some other administrative changes were made: specific duties were laid where possible, while cash duties, home valuation, and the examination of parties under oath made the act distasteful to importers.

When the Democrats came into power in 1845, they proceeded to reform the tariff along revenue lines. Robert J. Walker was appointed secretary of the treasury and drew up a tariff act upon free-trade principles. Articles were classified for the first time into several schedules, labeled A, B, C, etc., and the groups were taxed respectively 100 per cent., 40 per cent., and so on down to 5 per cent. Luxuries were placed in the first group, and the controverted articles, for which the manufacturers demanded protection, like iron, manufactures of metals, wool and woolens, leather, glass, paper, and wood, were placed in class C and taxed 30 per cent. While this has often been called a free-trade measure it was really only moderated protection. On the administrative side all the duties were made ad valorem, which led to considerable undervaluation and evasion. The warehousing system, under which

the government stores imported goods in a bonded warehouse without payment of duties for three years, was introduced at this time, and this feature has been permanently retained.

152. The tariff, 1846–1861. — The period from 1846 to 1861 was one of great industrial prosperity in the United States. As has been pointed out, the gold discoveries in California, the rapid building of railroads and opening up of the West, the increase in immigration, the famine in Ireland, and other factors brought about a great revival of business and rise in prices. With this expansion of activity importations increased, and with them the government revenues, until it became necessary to lower the duties in order to reduce the redundant income. The average annual yield of the tariff of 1846 was $46,000,000, while that of 1842 had been $26,000,000. In 1857 a measure was passed with little party opposition which provided for a reduction of about 5 per cent. from the tariff of 1846; at the same time the free list was enlarged.

Within a few months after the passage of this act a severe commercial and financial panic broke out, which greatly reduced the government revenues and resulted in a series of treasury deficits. Accordingly the Morrill tariff of 1861 restored duties to about the level of the tariff of 1846. There has been much discussion as to the degree of causal connection between the tariff measures of 1846 and 1857 and the early prosperity and later depression of this period, but it seems clear that other factors were much more important in bringing about these results than the tariff acts. There had been an enormous addition to the circulating medium of the country, in the form both of gold and of bank-notes and credit; railroad building was excessive, speculation in western lands and doubtful industrial enterprises was general, while large importations had created a heavy balance of foreign indebtedness against us. These forces alone would undoubtedly have brought about a reaction, which at most was only precipitated by tariff changes.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XI

The first problem which arose after the War of 1812 was as to the governmental attitude toward manufactures. After a policy of protection had been decided upon, the real problems of domestic manufacturers presented themselves as to methods of production, of markets and prices, of organization, of wages and labor conditions, and of foreign competition. These were met with different degrees of success in different industries.

1. What are the chief characteristics of the factory system; the differences between it and the domestic system? [E. P. Cheyney, Introduction, 213; E. W. C. Taylor, Hist. of the Factory System; W. J. Ashley, The Early Hist. of the Woollen Industry, in Publ. Amer. Econ. Ass., II, 366–380; C. D. Wright in Tenth Census (1880), II, 537.]

2. Did the industrial revolution in the United States lead to such bad results as in England? Why not? [American State Papers, Finance, II, 666–689; K. Coman, 180–185; J. L. Bishop, II, chap. 3; R. T. Ely, Outlines of Econ., 55.]

3. Why did New England take the lead in manufacturing? [W. B. Weeden, see Index; K. Coman, 180.]

4. What were the conditions in New England textile factories in the thirties? [C. D. Wright, Some Ethical Phases of the Labor Problem, 74; H. Martineau, Society in America; E. Abbott, Women in Industry.]

5. What objections may be urged against the factory system? Are they conclusive? [C. D. Wright, in Tenth Census (1880), II, 537; C. D. Wright, Some Ethical Phases, chap. 3.]

6. Describe the early experiments with the use of anthracite coal. [W. J. Nicolls, Story of Amer. Coals, chap. 4.]

7. Do you regard the decrease in the number of small industrial establishments as a loss or a gain to the nation?

8. Mention some of the great fortunes made as a result of patents.

9. Is it right or expedient to give a man a complete monopoly over a patented invention for seventeen years? Are inventions ever patented and then not used? Would it be better to throw open the invention to every one on condition of paying royalty to the inventor? [J. W. Jenks, Trust Problems, 1st ed., 220.]

10. Why are patents or public franchises granted to private individuals by society?

11. Are most successful inventions made by accident or after long study? [A. Smith, Wealth of Nations, book 1, chap. 1 (p. 11 in Econ. Classics); N. Senior, Pol. Econ., 73, 74; J. S. Mill, Princ. of Pol. Econ., book 1, chap. 8, sect. 5; Sargent, Public Men and Events, 11, 193.]

12. Describe some unique American inventions which are peculiar, so far as you know, to this country. [E. W. Bryn, Progress of Invention, chap. 19; K. Coman, 227.]

13. Why was the tariff of 1828 called the "tariff of abominations"? [F. W. Taussig, Tar. Hist., 88; D. R. Dewey, Fin. Hist., 176; A. S. Bolles, Fin. Hist., II, 393–409.]

14. Albert Gallatin in the Free Trade Memorial of 1832 said that a protective tariff involves a national loss. What did he mean? Is it true? [Taussig, State Papers and Speeches on the Tariff, 108–213; C. J. Bullock, Introduction, 355; W. G. Sumner, Protectionism, 16, 17.]

15. Why did the South oppose protection? [W. Wilson, Div. and Reunion, 39–61; Dewey, chap. 8; Bolles, Fin. Hist., II, 363–7; Taussig, Tar. Hist. 73.]

16. What was the nullification ordinance of South Carolina and its relation to the tariff? [E. Stanwood, I, 386; W. MacDonald, Select Documents, 231–237; W. G. Sumner, Jackson, 281–291; C. Schurz, Clay, II, 1–22; W. McDonald, Jacksonian Democracy, chap. 9; D. F. Houston, Nullification in So. Car.]

17. What principles did Walker lay down in his Treasury report for 1845 to govern customs duties [Taussig, State Papers, 214–251; Exec. Docs., 29 Cong., 1 sess., II, No. 6.]

18. Do you think the prosperity of this period was due to the Walker tariff [J. L. Bishop, II, 431; U. Rabbeno, 184–199; E. Stanwood, II, 83–93; D. R. Dewey, 256–259; W. G. Sumner, Hist. of Protection.]

19. Why was a new tariff act passed in 1857? [Dewey, 262; Stanwood, II, 97–108.]

20. Do you think it would have been advantageous for the United States to have adopted a free trade revenue tariff after the Walker tariff?

21. What arguments in favor of protection were advanced by Henry C. Carey? [H. C. Carey, Princ. of Soc. Sci., I, chap. 4, sects. 1–3, 8, 10, 14, 15, 19, 20, 26–29.]

22. What was the deficit in home-grown wool required by our manufacturers, 1840–1860? From what places was it supplied? [Twelfth Census (1900), IX, 90.]

23. Describe the manufacture of wooden and of brass clocks in the United States. [Bishop, II, 97, 396, 427.]

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CHAPTER XII

THE WESTWARD MOVEMENT

153. Significance of the westward movement. — From the beginning of our history the general movement of the population has always been westward, but the expression "westward movement" has a peculiar significance during this period, for now began on a large scale the serious task of occupying and subduing the country west of the Alleghanies. Other peoples in their growth have had to meet and conquer rival nations. With the exception of the Indians, who often obstructed or diverted, but never permanently hindered the westward expansion, the only serious obstacles at this time in the way of the Americans were the natural barriers and the inadequacy of the existing means of transportation. It was the quiet, restless, onward march, not of an invading army, but of peaceful settlers. For three quarters of a century this continued, giving character to American life and a sturdiness and energy which were lent only by contact with primitive conditions and large opportunities. The very nature of the people seems to have been changed by this great task of subduing a continent, gaining at once in initiative and vigor.

Beginning almost with the Revolution, and continuing with renewed energy after the embargo and the War of 1812, the people of the United States addressed themselves as a nation to the development of their internal resources. After 1808 capital and labor began to be diverted from commerce and shipping and invested in western lands and eastern manufactures; attention was now directed to internal development rather than to foreign policy. Since then the great work of

the American people has been that of opening up and exploiting their own resources, and has been surpassed in importance, if at all, only by the struggle for the preservation of the Union. This was the beginning of an economic revolution and has given color to and dominated our entire industrial and political history from that day almost to the end of the nineteenth century.

154. Early westward migration. — The successful ending of the French and Indian War, which gave to England the territory east of the Mississippi and removed the fear of French aggression, afforded the opportunity for a westward movement of the population, though this was opposed by the British government in the Royal Proclamation of 1763. It could not be restrained, however, and the earliest advance took place into what is now Kentucky and Tennessee. The territory between the Tennessee and Ohio rivers had been ceded to the English by the Indians, by the treaty of Fort Stanwix in 1768 and other treaties, and lay invitingly open to settlers from Pennsylvania, Maryland, Virginia, and North Carolina by way of the Ohio River and its tributaries or by the Cumberland Gap. The movement was a slow one, retarded by Indian resistance and, both before and after the Revolution, by English hostility, both of which had to be met and overcome, largely by the efforts of the settlers themselves. Politically these early settlements were of great importance in settling the dispute with Great Britain for possession of the western crown lands. By 1790 there were about 200,000 persons in the territory west of the Appalachian Mountains; ten years later, 387,183; and in 1810, 1,075,398. The distress which followed the War of the Revolution and the attendant economic chaos drove the people from the seaboard over the mountains in search of new fortunes.

155. Movement of the population. — There was a rapid settlement of the Mississippi valley after the purchase of Louisiana, and between 1810 and 1820 that movement re-

ceived a new stimulus. In 1810 about one million people were living in the western States and territories, a number which more than doubled within the next ten years. So long as land was to be had, the rate of movement westward has always been a fluctuating one, being retarded or hastened by the economic condition of the people: in good times it has been slow; in bad times, rapid. During the period of depression following the Revolution, the migration from the Atlantic seaboard was rapid. It declined during the good times of the Napoleonic wars, with the exception of a huge wave at the time of the Peace of Amiens, which sufficed to bring Ohio into the Union. The embargo and the War of 1812 again sent streams of settlers west in search of better conditions. This movement has been well described in Peck's New Guide for Emigrants to the West, published in Boston in 1837, in the following passage:

"Generally, in all the western settlements, three classes, like the waves of the ocean, have rolled one after the other. First comes the pioneer, who depends for the subsistence of his family chiefly upon the natural growth of vegetation, and the proceeds of hunting. His implements of agriculture are rude, chiefly of his own make, and his efforts directed mainly to a crop of corn and a 'truck patch.' . . . A log cabin, and occasionally a stable and corn-crib, and a field of a dozen acres, the timber girdled or 'deadened,' and fenced, are enough for his occupancy. . . . The pre-emption law enables him to dispose of his cabin and corn-field to the next class of emigrants; and, to employ his own figures, he . . . 'clears out for the New Purchase' . . . to work the same process over.

"The next class of emigrants purchase the lands, add field to field, clear out the roads, throw rough bridges over the streams, put up hewn log houses with glass windows and brick or stove chimneys, occasionally plant orchards, build mills, school-houses, court-houses, etc., and exhibit the picture and forms of plain, frugal, civilized life.

"Another wave rolls on. The men of capital and enterprise come. The settler is ready to sell out and take advantage of the rise in property, push farther into the interior and become himself a man of capital and enterprise in turn. The small village rises to a spacious town or city; substantial edifices of brick, extensive fields, orchards, gardens, colleges, and churches are seen."

156. The settlement of the West. — The three types just mentioned represent three stages in the development of the West, and as many steps in the process of pioneering. The early pioneers who moved out to the frontier just after the Revolution did so under very different conditions than were present in the later movement. Without improved means of transportation they were forced to make their way on foot, on horseback, or by wagon, over roads which were but slightly improved trails. The settlement of the West may fairly be regarded, as Callender suggests, as a great example of colonization, for the land journey from, say, Connecticut to Ohio was more difficult and expensive to make than the ocean journey from Europe to New England. Arrived at his destination, the pioneer was cut off from communication with his old home, and suffered all the inconveniences and hardships of settlement in a new country. With little capital, even in the form of adequate agricultural implements, with no markets — certainly no convenient ones — for the exchange of his surplus products, he was thrown back entirely upon his own resources. Under these conditions life was hard and progress was slow.

When the second generation pushed their way along the track thus marked out for them, they had the advantage of improved means of transportation — turnpikes and canals, and later still the railroad. The West was thus made at once more accessible for settlers and they were able more easily to reach markets, which moreover had now grown up and were ready to purchase their surplus products. So important were these factors that one observer called the railroad the "soul of western civilization." The very facility of movement brought evils of its own and induced a migratory spirit among the people, which made them ever ready to move on. The last stage in western progress is reached when the men of capital come. They are the permanent settlers and introduce permanent improvements: they build durable houses, establish manufactories, and develop the resources of the

country. But by the time this stage in development has been reached the frontier has been pushed farther on, and the work of real pioneering is being done by other hands.

157. Results of the movement. — The population of the northwestern States — Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa — increased from 50,240 in 1800 to 792,719 in

MIGRATING FROM CONNECTICUT TO OHIO

Settlers migrating from New England or New York to the Ohio valley usually traveled by wagon as far as Pittsburgh, from which point they floated down the river to their destination. For protection against the Indians the emigrants usually went in large companies.

1820, and 2,967,840 in 1840. "We are great," said Calhoun in 1817, "and rapidly — I was about to say fearfully — growing." So great indeed had this westward migration become by 1817 that its effects were already apparent in the East, from which most of the settlers came. In New York the increase in population between 1810 and 1816 was only 3600, which was much less than the gain in the number of immigrants in the State. The West, on the other hand,

developed rapidly; but there was no sudden growth of cities. The population simply spread out over a wider territory, which it brought under cultivation. Thus from 1829 to 1830, while the population increased 32.5 per cent., the settled area increased 24.4 per cent.; between 1830 and 1840 the increase respectively was 32.5 per cent. and 27.6 per cent. During this twenty-year period, therefore, in spite of the fact that the population almost doubled, the density of the settled area increased by only about two individuals to the square mile. Great as was this movement, the real significance lay not so much in the increase in population as in the opening

CONESTOGA WAGON

A favorite type for transporting freight across the Alleghanies to the Ohio and Mississippi valleys previous to the introduction of the railways. Drawn by four to seven horses, they could carry from four to six tons, on which the rates from Philadelphia to Pittsburgh were about $2.00 a hundred pounds; the trip between these points was made in twenty days. They were first extensively used in the Conestoga valley, from which they derived their name. The body was made seamless and water-tight and shaped much like a boat, so that it would float.

up of the West. Before they could make any economic contribution to the rest of the country, however, the western settlers must have access to a market. There must not only be improvements in the means of transportation and communication, but there must be a demand for their products. The first of these conditions was in large measure met by the invention of the steamboat; the second by the spread of cotton culture through the Southwest.

158. Western trade. — In the frontier of a country, according to Ratzel, is to be found an index of its growth or decay. Judged by this standard the early western settlements were significant of great national vigor. Cut off as they were from easy communication with the eastern seaboard, they were compelled to become largely self-supporting and economically independent. Of necessity the settlers were forced, by the high prices of imported goods, to manufacture articles of daily use. Almost every community had a grist and saw mill, while many had forges, tanneries, and salt works, paper and cotton mills. A few products like hides, furs, and ginseng they could send East by pack horses or wagon, while hogs, cattle, and horses could be driven over the mountains; but most of their produce found its way down the Mississippi. Some manufactured articles were shipped from the East by wagon to Pittsburgh, from which place they were distributed by water. Down to 1807, however, the West showed little commercial development; a growing population found easy subsistence on a fertile soil, but they had as yet little in the way of surplus products to sell and no important market. By 1807 the total value of the produce received at New Orleans was only $5,370,000.

Mississippi River Flatboat

Flatboats were the chief means of conveying goods to market in the West. They could only be floated down stream, and were built of materials that could be broken up at the end of the voyage and sold as lumber. It took four weeks to make the journey from St. Louis to New Orleans with such a craft.

159. The introduction of the steamboat on western waters. — Within four years after the launching of the *Clermont* on the Hudson (1807) the first steamboat was introduced on the Ohio; but not until 1816 did it succeed in making the trip up the Mississippi River from New Orleans against the swift

MISSISSIPPI RIVER STEAMERS AT CINCINNATI, 1830

After 1812 steamers multiplied on the western rivers, as the boats could be constructed anywhere out of the abundant timber, while the fuel was collected from the wood on the river bank. Only the engines and boilers had to be brought over the mountains. In 1820 it took thirty-five days to go up from New Orleans to Pittsburgh by steam and ten days to go down.

current. With that event began the era of successful steam navigation on the Mississippi and its tributaries. The number of steamboats on the western rivers increased rapidly, from 14 in 1815 to 200 in 1829, and 450 in 1842. An especial impetus was given to the steamboat trade in 1824 by the decision of the Supreme Court in the celebrated case of Gibbons *vs.* Ogden, that the waters of the Hudson, and hence of other rivers throughout the United States, were the heritage of the people and could not be monopolized by any State or individual. A company, headed by Fulton and Livingston, who had made the first experiments on the Ohio and Mississippi, had obtained a charter from Louisiana giving them the exclusive right of navigating the Mississippi with steam vessels for fourteen years. This monopoly was now broken down and navigation made free to all, subject only to Federal legislation. In 1825 the steamboat had passed all competitors and in the next year carried fifty-seven per cent. of all the freight to New Orleans.

Side by side with the steamer a considerable flatboat trade still existed, of which a picture is given by Levi Woodbury, who made a trip down the Mississippi in 1833.

"At every village we find from ten to twelve flat-bottom boats, which besides corn on the ear, pork, bacon, flour, whiskey, cattle and fowls, have a great assortment of notions from Cincinnati and elsewhere. Among these are corn brooms, cabinet furniture, cider, plows, apples, cordage, etc. They remain in one place until all is sold out, if the demand be brisk; if not, they move farther down. After all is sold out they dispose of their boat, and return with the crews by the steamers to their homes."

In course of time, as the plantations grew larger, this method of peddling from wharf to wharf declined. The planters engaged agents at New Orleans to sell their cotton and to purchase supplies, which were shipped back by steamer. After about 1846 there was a gradual decrease in the number of flatboats, and by 1856 they had ceased to be a factor in the river trade and were no longer listed among the arrivals at New Orleans.

160. Extent of the internal trade. — The steamboat had furnished the western territory with a fairly rapid and adequate means of transportation, and its effect upon the trade of that section was quickly seen. Rates were high at first: from New Orleans to Louisville in 1816 freight rates were $112 a ton and passenger fares $125 (half rates down stream), but they were materially reduced as soon as the trade became established. The improvement in speed, by reducing the time, increased the number of trips. The value of the commerce carried on the rivers expanded greatly. The value of the produce received at New Orleans in 1816 was $8,062,540, of which at least eighty per cent. came from the Ohio and upper Mississippi. This increased by 1829 to $22,065,518, and to $49,763,825 in 1840. The shipments were at first raw agricultural products, then articles like pork, flour, and others that required some process of treatment, and finally simple manufactured articles, such as bagging, rope, twine, candles, glass, and iron. They tell the story as well of the industrial advance in the Ohio valley as of the growing commerce between the sections. By 1842 the money value of the direct river trade to New Orleans was given as $50,506,903. Including the intermediate trade and the passenger traffic, the total commerce of the western rivers was probably over $100,000,000.

At the same time the trade on the Great Lakes was steadily growing, though not so rapidly as the river commerce. In 1816 the first steamer was built on the waters of Lake Ontario, and three years later the first steamer on Lake Erie, the *Walk-in-the-Water,* was launched. The building of the Erie Canal greatly stimulated the lake trade, the tonnage on all the lakes increasing from 3500 in 1820 to 20,000 in 1830, and 75,000 in 1840.

161. Spread of cotton culture in the Southwest. — The second condition to the development of the West lay in the creation of a market. This condition was met by the extension of cotton culture into the Southwest, which at once led

to the settlement of that section and developed a market for the surplus agricultural produce of the North. At the time of Whitney's invention cotton was raised only in Georgia and South Carolina; thence it spread to North Carolina and Virginia during the early years of this century, but for more than twenty years it was confined to the Atlantic seaboard. By 1811 a beginning had been made in Tennessee and Louisiana, but together they produced only one sixteenth of the cotton raised in the United States. After the war with England, Alabama and Mississippi also began to attract attention as cotton-growing regions, and for the next twenty-five years a perfect stream of immigrants poured into this fertile district. By 1821 the four last mentioned States raised one third of the cotton grown in the United States, by 1831 nearly one half, and by 1834 over two thirds. The production of sugar was also increasing in Louisiana at this time, and was very profitable. The growing importance of this section may be shown by the exports of cotton from Louisiana, which increased from five million pounds in 1810 to thirty in 1820 and one hundred and sixty-four in 1834. At the same time the population of the South was growing by leaps and bounds: Alabama, Louisiana, and Mississippi increased from 116,908 in 1810 to 355,756 in 1820, 660,667 in 1830, and 1,318,818 in 1840, practically doubling every ten years.

162. Effect on the South. — The effect of this extension of cotton culture into the Southwest was first of all to increase enormously the production of cotton. From 85 million pounds in 1810 the annual production grew to 160 in 1820, and 350 in 1830. Owing to a steady fall in the price of cotton the total value of the crop does not show the same increase, the figures for the same years being $13,600,000, $27,200,000, and $35,000,000; over three fourths of this was exported. With such a profitable crop all the energies of the southern planters were devoted to extending the cotton area, other crops being completely neglected. At the same time

slavery was firmly established on an economic foundation, and so far as the South was concerned the whole gain of the extension of cotton culture went to build up and extend the system of slavery. The circle of investment, as described by a southern journal, was "making more cotton to buy more negroes to raise more cotton to buy more negroes." Most of the planters in the Southwest were slave-holders who came from the older slave States with their property; two hundred and fifty thousand slaves are reported to have been brought into this region during the single year 1836.

By the ordinance of 1787 and subsequent acts of Congress slavery had been forbidden north of the Ohio River and east of the Mississippi, but as yet the question of slavery west of that great river had not been settled. In 1812 the slave State of Louisiana was admitted to the Union, and in 1818 Missouri applied for admission, followed a year later by Maine. The question as to whether Missouri should be admitted as a free or a slave State was hotly debated. Finally, in 1821, by the so-called Missouri Compromise, Missouri was admitted as a slave State, while, to balance the concession to the slave-owners, Maine was admitted as a free state and slavery was forbidden in the remainder of the Louisiana purchase north of Arkansas. Thus the cotton-growing States of the Southwest were opened to slavery and remained so until the time of its final abolition.

163. Slavery is firmly established. — The development of slavery proceeded with the spread of cotton culture and became firmly identified with it. By 1822 the large plantation slave system was taking the lead, and by 1840 it had displaced the small planter who was working with free labor. The character of slavery had meantime changed from the patriarchal serfdom of colonial days to a well-organized industrial system upon which was founded the economic development of the South. At the same time the attitude of the South towards the institution changed with the expansion of the cotton industry. From 1808 to 1820 many Southerners

were willing to abolish the slave system, could it be done safely and without loss. From 1820 on, however, there was no talk of abolition; the demand for cotton and the movement into the rich bottom lands of Mississippi led to a demand for labor which could not be supplied even by the traffic which prevailed between the slave-breeding border States and the cotton-growing Gulf States. An illicit slave-trade accordingly sprang up between Africa and the West Indies or Texas, whence slaves were smuggled into the southern States. The increased prices of slaves, owing to the risk attaching to the business and to the demand in the cotton-fields, proved an irresistible attraction to American capital, and much was invested in the trade. In 1815 the average value of all slaves dependent on cotton culture was $250; in 1840 it was estimated by De Bow at $500. Slavery had now become more than ever localized in the South. In 1820 only 19,108 of the 1,538,038 slaves in the United States lived north of Mason and Dixon's line; in 1840 only 1129 out of 2,487,355 were to be found there. The total number of slaves showed an increase in almost the same proportion as the white population, and this in spite of the large additions to the latter by immigration.

Towards the end of this period, in 1831, the anti-slavery movement began in the North and continued until slavery was done away with during the Civil War. There was, however, a strong anti-abolition spirit still to be found there, while Congress remained distinctly neutral or even friendly to the slave interests, as indicated by the "gag resolutions" which tabled without further action all anti-slavery petitions presented to Congress. About 1838 a change in sentiment towards slavery began in the North, but it did not gather strength until after 1840.

164. Effect on the West. — We have already seen something of the great increase in commerce on the western rivers after 1816. It was the opening up of the Southwest, with its one-sided single-crop cultivation, that provided an outlet for

the surplus agricultural produce of the West and thus permitted the development of this section as well. So great was the inclination of the cotton planters to confine themselves to their staple crop that other products were entirely neglected, and instead of being raised at home were purchased from the agricultural States of the Northwest with the proceeds of the cotton crop. Corn, flour, bacon, hams, lard, and live stock, with a hundred other articles of minor importance, were floated down the Ohio and Mississippi rivers and found a ready market in the southern States. The following table shows the fluctuations in the amount of a few products arriving in New Orleans:

RECEIPTS OF PRODUCE AT NEW ORLEANS

Articles	1822	1830	1840	1850	1861
Bacon, pounds	.....	1,282,354	1,117,987	209,045	784,399
Corn in ear, barrels	57,179	42,194	152,965	42,719	22,216
Corn, shelled, sacks	.....	290,754	278,358	1,114,897	315,652
Flour, barrels	120,159	360,580	482,523	591,986	281,645
Lard, kegs	13,003	131,111	177,303	302,366	4,290
Pork, pounds	142,800	953,200	5,099,987	10,513,895[1]	610,219

[1] 1851.

An estimate of 1845, given by Ingle, was that in twenty years southern planters had spent $900,000,000 in neighboring States for mules, horses, implements, and clothing, an expenditure made necessary because they had employed all their labor and land in producing staple crops.

165. Effect upon the East. — The effects of the extension of cotton culture and the consequent creation of an important new market was felt in the East as well as in the Northwest. The growing manufactures of this section found a ready sale among the population west of the Alleghanies. There had thus developed a sectional or territorial division of labor, by which the South produced raw materials (mainly for export),

the Northwest raised the food supplies, and the East devoted itself to manufactures. The trade in each case, however, was a one-sided one and did not lead to close economic interdependence; the East sold to the West but did not buy from it, the West sold to the South, and the South exported three fourths of its crop to England. Some indication has already been given of the large and remunerative internal trade which resulted from the exchange of these goods. An enormous stimulus was given to the commercial interests of the country and new opportunities were open to the merchant, importer, ship-owner, banker, insurance company, and middlemen in general, most of whom were located in the eastern States. The growth of manufactures has been described, but it is impossible to give any adequate picture of the development of the commercial class at this period. According to an estimate by Seaman, in 1840 there were 188,000 persons engaged in commerce and navigation employing a capital of $430,000,000.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XII

The pioneer settlers who moved west had several problems to meet in their new adventure: by what route, by what sort of conveyance, to what section should they go. Once arrived at their destination they faced new problems of adjustment, of production, of finding a market for their surplus products, and of obtaining for themselves the manufactured goods of more advanced sections.

1. Is Bishop Berkeley's saying, "Westward the course of empire takes its way," true of the United States?

2. "The true point of view in the history of this nation is not the Atlantic coast, it is the great West. Even the slavery struggle . . . occupies its important place in American history because of its relation to westward expansion." Do you agree with this? [F. J. Turner, The Frontier in Amer. Hist., in Proc. Amer. Hist. Ass., III, 200.]

3. Was settlement or speculation the more important motive in western pioneering? [T. Flint, Recollections, 198–207; F. A. Michaux, Travels, 188–194; F. J. Turner, The New West, chap. 6.]

4. Where were the important western settlements? Why were these

particular localities chosen? [A. B. Hart, Hist. told by Contemp., III, 97–106.]

5. How did a western emigrant move in the days before the railways? [Hart, Hist. told by Contemp., III, 114–119.]

6. What was the character of the river craft, and of navigation on western rivers? [A. B. Hulbert, Waterways of Western Expansion, chaps, 3–6; Internal Commerce of U. S., Treas. Dept. *1887*, 172–213; W. L. Abbot, Amer. Ships and Sailors, 268–269.]

7. What attempts have been made to restrict the navigation of the Mississippi River other than that mentioned in the text? [T. J. Lawrence, International Law, p. 188; E. Schuyler, Amer. Dipl. and Com., chap. 6.]

8. What was Mason & Dixon's line? How did it come to be established? [E. Channing, Stud. Hist. of U. S., 115–116; H. W. Elson, Hist. of U. S., A. B. Hart, Essentials, 109.]

9. Describe the abolition and anti-abolition sentiment in the North, 1830–40. [E. Channing, Stud. Hist., 423–427.]

10. As the population of the cotton States grew, what proportion was white, what slave, and what free colored? [E. C. Seaman, Progress of Nations, 1, 584; K. Coman, 216; Fifth, Sixth and Seventh Census; Eighth Census (1860), vol. on Pop. vii–xvi; J. D. B. De Bow, Ind. Res. of So. and West, III, 419.]

11. Could the South have diversified its crops and produced its own food products, manufactured goods, etc.? Why did it not do so? [E. Ingle, Southern Sidelights, chap. 3; De Bow, Ind. Resources of So. and West, arts. Agric., Cotton, Slavery, South, etc.]

12. What were the exports of cotton during this period? Was there any connection between them and the total imports, and the countries involved? [L. Woodbury, Writings, III, 272.]

13. How much of the cotton raised was consumed at home? How much in the South? [Woodbury, Writings, III, 289–311.]

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CHAPTER XIII

TRANSPORTATION AND INTERNAL IMPROVEMENTS (1808–1840)

166. Importance of transportation in the United States. — At every period of our history the need of improved means of transportation has been pressing. This has from the first settlements been the essential condition of the opening up of the continent. As the population began to push westward across the mountains and away from easy water communication, the need became greater. The political necessity of interstate communication was emphasized by the Revolution and the separatist tendencies of the rapidly growing western territory, and with the establishment of the Union a movement for improvement was inaugurated. At no time was the demand for betterment so urgent as it was during the period which succeeded the War of 1812. The difficulties of transporting troops revealed the inefficiency of existing means of transportation, and the settlement of the West which followed made improvement absolutely imperative. Only by this means could the vast interior of the continent be made accessible to the people of the United States and be connected, economically as well as politically, with the Atlantic seaboard. The westward movement of the population and the development of our resources were made possible only by the building of means of communication better than the old trails or natural waterways. And yet so slow was the early movement that in 1803 Thomas Jefferson said it would be a thousand years before the region east of the Mississippi could be fully settled. If the people had been compelled to depend exclusively upon natural waterways and roads, this would probably have been true.

167. Stages of development. — The turnpike, the canal, the steamboat, and the railroad all mark successive stages in the improvements which were effected. The opening of the Southwest, the development of commerce between that section and the North and East, and the growth of population throughout the entire western territory, at once occasioned, and were made possible by, the improvement of the means of communication and trade. The demand for better facilities led to the investment on the part of the people, not only in the western country, but in the East as well, of immense sums of capital in these enterprises, and resulted in an unexpected but revolutionary change in the economic policy of the country.

The history of transportation in the United States divides itself logically into three periods: the turnpike period, the river and canal period, and the railway period. Of these the first belongs to the time between the Revolution and the War of 1812. Before this movement had more than fairly gained headway, canals began to be built, and for some time also the use of the steamboat greatly stimulated river navigation. This period may be said to have continued from 1816 to 1850. About the latter date railroad building, which had begun twenty years before, set in on a considerable scale and railroads began to threaten the supremacy of the canals; by 1860 they had almost superseded the latter.

168. The turnpike period. — The first American turnpike was built in 1790, and soon New York, Pennsylvania, and New England were fairly well supplied with them. They were a great improvement over the early local roads, for they were built as a continuous line for through traffic, and in spite of high tolls greatly reduced the cost of transportation. But, as compared with water carriage, land transportation was still very expensive. It cost about thirty-three per cent. of the value of goods to convey them from Philadelphia to Kentucky by land, and only four to four and one half per cent. from Illinois to New Orleans by water. On the average

it cost about $10 a ton for every 100 miles to transport goods by land; articles which could not stand these rates, as flour and grain, were excluded from a market unless they found an outlet by water. During the continental wars the great demand abroad for our agricultural staples increased the need at home for better means of communication. "In a few years," says McMaster, "a sum almost equal to the domestic debt at the close of the Revolution was invested by the people in the stock of turnpike companies."

Until 1807 the roads and turnpikes in the country had been constructed for the most part by private companies, though often with State aid. Those to the West had been built by the shortest routes through the gaps in the mountains, starting mainly from Philadelphia; Pittsburgh was an important point of trans-shipment and was growing rapidly. "You may go from Philadelphia to Pittsburgh," wrote Seybert, "in the stage, 310 miles, in five and a half days, and be lodged every night on the route."

169. Federal aid. — In the year 1807 Gallatin made his famous Report on Roads, Canals, Harbors, and Rivers; he proposed a comprehensive scheme of internal improvements by Congress, which would involve an expenditure of about $20,000,000. The net result of the ensuing agitation was the construction by the Federal government of the Cumberland Road or the "National Pike" from Cumberland to Vandalia, Ill. This was completed in 1838 at an expense of $4,300,000. Congress readily entered upon this policy of internal improvements, not merely for the economic purpose of securing better and cheaper transportation, but for political reasons also; a minor consideration was the greater speed and safety that would be given to the mails. As a solution of the problem of improved transportation, however, the building of roads was inadequate, and before the Federal government could enter upon a more general scheme of internal improvements, doubts as to its constitutionality brought the Federal system to an end. But the movement did not cease; better means of

communication must be had, and the work of providing them was next taken up by the States.

170. The river trade. — The invention of the steamboat in 1807, and its introduction upon the Ohio four years later, made the rivers, as we have seen, important highways of commerce. Even in days of flatboats and barges the trade of the Mississippi and its tributaries had been considerable, and it now grew rapidly. Towns like Pittsburgh, Cincinnati, St. Louis, and above all New Orleans, increased steadily in population. For the agricultural products of the West the only outlet was New Orleans; but in the early days the long river journey with no hope of a return cargo, the danger to the cargo by reason of the change to the hotter climate of the lower Mississippi, and finally the long sea voyage to a market, made the shipment of produce down the river a hazardous and often losing venture. The spread of cotton culture and the peopling of the Southwest, by providing a home market at the mouth of the Mississippi, greatly increased the river trade and to some extent solved the problem of an outlet for the produce of the western country.

But the farmers in northern Ohio and Indiana, in Michigan, and other sections of the country which were not situated on a tributary of the Mississippi, still clamored insistently for better means of communication, especially with the East. In addition to the economic weakness, there was also a political danger in the situation. The country was divided into three strongly marked sections — the East, the South, and the West — and the economic bonds holding them together, especially those between the East and West, were not sufficiently powerful to overcome the tendencies towards separation which had even now shown themselves.

171. Early canals. — While canal building on a large scale did not take place until after the turnpike period had practically ended, a beginning was made as early as 1785, when Virginia granted a charter to the James River Company. Their importance, however, had early been recognized by

George Washington, and even before the Revolution he had planned a canal to connect the Chesapeake and Ohio rivers and had prophesied the union of the Hudson River with Lake Erie. He recognized that a country of such vast extent could be held together only by closer economic bonds. The first canal constructed in the United States was the Dismal Swamp Canal, begun in 1787 under a joint charter from Virginia and North Carolina, and opened in 1794. Many other canals were projected between 1790 and 1800, especially in New York, Pennsylvania, and Massachusetts, but the era of canal building did not really occur until after the War of 1812.

ERIE CANAL

The Erie Canal was the most important artificial waterway built in the United States. By connecting the Hudson River with the Great Lakes it formed a continuous waterway from the Middle West to the Atlantic seaboard, and had a wonderful influence in opening up the new sections of the country.

172. The era of canal building: the Erie Canal. — The first answer on a large scale to the demand for improved means of communication was made by New York State in

building the Erie Canal, connecting Lake Erie with the Hudson River. Gallatin names six canals that had been constructed prior to 1807 at a cost of over ten million dollars; but none of any commercial importance had been attempted until the success of the Erie Canal showed the way. The plan for this was not a new one; as early as 1792 a company had been formed to connect Lake Erie with the Hudson River. The actual work of building the canal did not begin until 1817, but within eight years it was finished. The completion of the "big ditch" was celebrated with appropriate ceremonies at Buffalo, from which point a fleet of boats proceeded to New York, where their arrival was the signal for a fresh outburst of enthusiasm. A flask of water from Lake Erie was poured into New York Bay, and the marriage of the inland waters with those of the ocean was declared to be consummated. The canal immediately became a source of revenue, entirely paying for itself in ten years.

Still more important than the financial returns were the economic advantages of the canal to the community at large. Wherever the canal touched a waterway a thriving town sprang up, as at Syracuse, Rochester, and Utica. Buffalo and Albany, the terminals, grew rapidly and New York City became the leading port of the United States. Branch canals were built connecting the main canal with Champlain, Ontario, and Seneca lakes, and these stimulated a vigorous trade. The number of vessels on Lake Champlain before the canal was opened was only 20, but a year later there were 218. Previous to the construction of the canal the cost of transportation from Buffalo to New York City was $100 a ton and the ordinary length of passage twenty days; most of the wheat of western New York was accordingly floated down the Susquehanna to Baltimore. On the opening of the Erie Canal the cost of freight fell, according to its class, to between $15 and $25 a ton, and the time of transit was reduced to eight days. Rates from Ohio to the seaboard were steadily lowered until they were about one tenth the former

figures. Nor were the effects confined to New York State alone; the entire western lake district had secured an outlet for its produce, and much that previously went down the Mississippi to New Orleans was now shipped through Buffalo at greatly reduced rates. In 1824 corn was sold in Cincinnati for 8 cents a bushel, wheat for 25 cents, and flour for $1.25 a barrel; after the opening of the canal these commodities brought in double or treble to the western farmers. The building of the Erie Canal had established an economic bond between the East and the West.

173. Canals in other States. — The success of this undertaking led to a perfect mania for canal building and public improvements, which was greatest in Pennsylvania, Massachusetts, Maryland, Virginia, Ohio, Indiana, and Michigan. Philadelphia, Boston and Baltimore saw their trade threatened by the diversion of the western commerce to New York City, and accordingly the States in which these cities were situated began to plan works to compete with the Erie Canal. The State of Pennsylvania constructed a system of canals from Philadelphia to Pittsburgh, with a portage railway over the Alleghanies, at a cost of over $10,000,000. It was completed in 1834, and was successful from the beginning. Massachusetts appointed a commission to inquire into the possibility of cutting a canal from Boston to the Hudson River, in order to divert some of the increasing western trade. By the time Baltimore was ready to act railroads had attracted favorable attention as an improved means of transportation, and in Maryland the first railroad was built in 1828.

It was in the western States, however, with their long distances and complete lack of roads, that canals were of the greatest economic significance. The opening of the Erie Canal was the signal for similar improvements in several of these States. The most important projects were those to connect the lakes with the Ohio and Mississippi rivers. By 1832 the Ohio Canal, from Cleveland to Portsmouth, had been

built by the State of Ohio, joining the Ohio River with Lake Erie. The effect in stimulating production and diverting trade from its old routes was immediate; three years later there were shipped from Ohio alone 86,000 barrels of flour, 98,000 bushels of wheat, and 2,500,000 staves by canal to New York.

At the same time the western farmer was enabled to secure better prices for his goods: products, which before had glutted the local market, could now be sent to distant points where

PASSENGER PACKET AND FREIGHT BOATS, ERIE CANAL

On the slow, but easily moving canal packet boat, travel was decidedly more comfortable than in the jolting stage coach. Seated on the cabin roof the passengers exchanged views on the scenery or the topics of the day until the cry of "low bridge" drove them down. Berths were arranged along the sides within and partitioned off by curtains. An ordinary freight boat is also shown.

they were in greater demand. Flour, which in 1826 sold at Cincinnati for $3 a barrel, brought $6 in 1835, and corn rose from 12 cents to 32 cents a bushel. Currency inflation was in part responsible for this rise in prices, but the farmer attributed it rather to improvements in transportation. He could also purchase his axes, plows, and other implements for a fraction of what he had formerly paid. These facts had a powerful effect upon the settlement of the West, which was now assured profitable markets and communication with the East.

174. Internal improvements by the States. — When the demand for internal improvements became urgent, the States

were turned to for assistance in carrying out the plans. The reasons for invoking State aid were several. In the first place, as we have seen, the Federal government, which had undertaken willingly enough the work of improving the means of communication, had been estopped from continuing it by constitutional objections. Private capital was not equal to the task of carrying out such large enterprises as were now being planned. Even if it existed in large enough amount, which was doubtful, the projects were too large and the returns too remote to warrant the risking of his whole capital by an individual. While these works of public improvement might have been entrusted to corporations, there was the feeling, in addition to a distrust of corporate management, that many improvements should be made that might not be commercially profitable, and that the State alone could undertake these. Moreover, the State had perpetual life and, with its high credit, could borrow the necessary capital on much better terms than could private individuals. It seemed eminently fitting, therefore, that the State governments should undertake the work of internal improvements. But there are some additional forces which should be mentioned, which explain the willingness of the State legislatures to enter upon this work.

The people of the whole country, particularly of the West, were insistent upon having improvements of every sort, and especially better means of transportation. Most of the State constitutions adopted during this period contained either directions or permissions to the legislatures "to encourage internal improvements within the State." The Federal government, though it had withdrawn from the work directly, gave assistance to the States in land and money: it donated a percentage of all sales of public lands to the States for this purpose and distributed among them the surplus revenue of the Federal government in 1837. Finally, the success of the Erie Canal, the commercial rivalry of the Atlantic ports, and the speculative fever of the period, led the legislatures to

embark in enterprises far beyond the needs or means of the people at that time.

175. Investment of borrowed capital. — The magnitude of the work of internal improvements undertaken by the States may perhaps be best shown by the increase in State indebtedness. Up to 1820 the States had incurred practically no liabilities, but beginning with that year their debts began to grow: in 1820 they were $12,790,728; in 1830, $26,470,417; in 1835, $66,482,186. During the next three years they almost trebled, reaching over $170,000,000 in 1838, and $200,000,000 in 1840. Practically all of this money went into internal improvements — roads, canals, railroads, and banks.

The following table shows succinctly the purposes for which the State debts had been contracted up to 1838:

OBJECTS OF STATE DEBTS, UP TO 1838

States[1]	For Banks	For Canals	For Railways	For Roads	Miscellaneous	Total
Alabama	$7,800,000		$3,000,000			$10,800,000
Arkansas	3,000,000					3,000,000
Illinois	3,100,000	$900,000	7,400,000		$300,000	11,600,000
Indiana	1,390,000	6,750,000	2,600,000	$1,150,000		11,890,000
Kentucky	2,000,000	2,619,000	350,000	2,400,000		7,369,000
Louisiana	22,950,000	50,000	50,000		235,000	23,285,000
Maine					554,976	554,976
Maryland		5,700,000	5,500,000		292,980	11,492,980
Massachusetts			4,290,000			4,290,000
Michigan		2,500,000	2,620,000		220,000	5,340,000
Mississippi	7,000,000					7,000,000
Missouri	2,500,000					2,500,000
New York		13,316,674	3,787,700		1,158,032	18,262,406
Ohio		6,101,000				6,101,000
Pennsylvania		16,579,527	4,964,484	2,595,902	3,166,787	27,306,700
South Carolina		1,550,000	2,000,000		2,203,770	5,753,770
Tennessee	3,000,000	300,000	3,730,000	118,166		7,148,166
Virginia		3,835,350	2,128,900	354,800	343,139	6,662,189
Total	$52,740,000	$60,201,551	$42,871,084	$6,618,868	$8,474,684	$170,356,187

[1] The seven other States, which at the time belonged to the Union, had no debt, namely Connecticut, Delaware, Georgia, New Hampshire, North Carolina, Rhode Island, and Vermont.

It is evident that this enormous expenditure of funds involved a large investment of capital. Little of it indeed was

raised by taxation; practically all was borrowed, part at home, but most of it from foreign capitalists. The extent to which foreign capital was being invested in the United States, and domestic capital and labor were being applied to the work of developing the West, is well illustrated by the state of our foreign trade. During the decade 1830 to 1840 the imports exceeded the exports about $200,000,000, and at the same time the imports of specie exceeded the exports by more than $50,000,000, while in spite of our agricultural pre-eminence we imported over five and a half million bushels of wheat during the same period. The high credit then enjoyed by the American States, which had been greatly enhanced by the payment of the national debt in 1833, enabled them to borrow these enormous sums abroad, and especially in England where capital had been accumulating, at comparatively moderate rates of interest. Ex-President Jackson in 1839 estimated that about $200,000,000 were due from States and corporations to creditors in Europe, on which the annual interest charge was about $12,000,000.

176. Failure of State enterprise. — The crisis of 1837 halted the work of internal improvements. As soon as the bubble of speculation and high prices was pricked, it was clear that many of the enterprises were premature and unnecessary. Most of them were extravagantly, if not corruptly, managed, while hundreds of thousands of dollars had been sunk in absolutely useless undertakings. When the debts, so easily contracted, began to press, several of the States repudiated their indebtedness; the worst offenders were Mississippi, Louisiana, Maryland, Pennsylvania, Indiana, and Michigan, though some of these States afterwards paid in part or in whole. The unwillingness on the part of the other States to be branded with the defaulting States as "repudiators," led to a demand, which culminated in 1842, that the Federal government assume all the State debts; but nothing came of the agitation.

The works already built were sold by most of the States,

and these now withdrew from the business of supplying railroads and canals; New York and Ohio were the only States which retained all their works. The changed attitude of the people regarding the advisablity of State enterprises found expression in the inclusion of provisions in practically all the State constitutions adopted after this period, prohibiting the use of State funds or credit for internal improvements. Having failed in the business once, they were to be debarred from further attempts along the same line. Accordingly, when the development of railroads began just at this time, the successive withdrawal of the Federal government and the failure of the State governments in this sphere left the work of building them to the enterprise of private individuals and corporations.

SAIL CAR

When railroads were first built, experiments were made with sails and horses as motive power. The most successful sail car was built by Evan Thomas for use on the Baltimore and Ohio Railroad. It sailed equally well in either direction, according to the direction of the wind. Its main usefulness lay in showing how little power was needed to propel a car upon rails as compared with even the best roads of the time.

177. Importance of railways. — Almost before the use of canals had begun, the railway, which was to revolutionize transportation, was introduced. For a decade attempts at railroad building were largely experimental, and they did not seriously compete with the canals and rivers until after 1840. The revolutionary effect which the introduction of the railway had upon the economic development of the country may, however, be noted briefly at this point; its fuller description belongs to a later chapter. The turnpikes

and canals had simply followed existing or natural routes of trade. They had made communication easier and had enormously increased the traffic between the different sections of the country. The rivers, together with the canals, furnished a splendid system of transportation, but as most of these flowed north and south, something more was needed if the East was to be brought into close touch with the developing West.

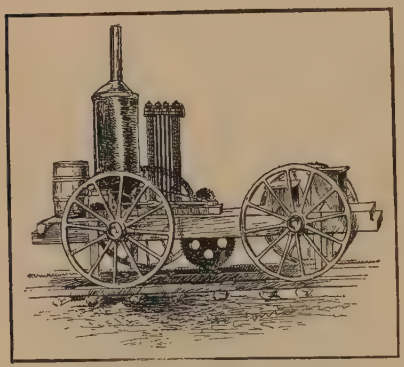
It remained for the railways to break down the sectional barriers and to divert the industrial development of the country into new channels. They were built east and west, they crossed the mountains and united parts of the country hitherto separated. With the introduction of the railway the country enters upon an entirely new phase of development. Owing to the fact, too, that the country was predominantly agricultural, the chief markets for most of the produce, especially of the West and South, was on the seaboard or in Europe. The very homogeneousness of pursuits rendered the interior markets small. This fact, coupled with the enormous distances which separated different sections, made a cheap and quick means of transportation indispensable to the full development of the resources of the country. Had it not been for the railway the full development of the far

HORSE CAR

In the early days of the Baltimore and Ohio Railroad, when no one did more than dream of steam, horses were expected to furnish the motive power. The first regular passenger service on a railroad in the United States was instituted between Baltimore and Ellicott's Mills in May, 1830. The cars were propelled by horses and made the distance of thirteen miles in one and one quarter hours.

West, and of other parts of the country untouched and inaccessible by river or canal, would have been impossible.

178. Early railroad building. — The first railroad in the United States was the Baltimore and Ohio, begun in 1828 and opened for traffic in 1830, although the Quincy tramway, used for transporting building stone to the Bunker Hill monument, and a couple of gravity roads in the coal regions of Pennsylvania, had anticipated it shortly. On the Baltimore and Ohio horse power and sails were used at first as a motive power, and not until after eighteen months of experiment was steam finally decided upon. The greatest development took place in Pennsylvania, especially in building roads from Philadelphia to the coal regions in the central part of the State; in 1835 there were about two hundred miles of railroad in the State. Connection was made with New York in 1839. Farther south great activity was displayed. The Charleston and Hamburg railroad, one hundred and thirty-seven miles in length, was the longest line under one management in the world when it was opened for traffic in 1833. Massachusetts, New York, New Jersey, and Virginia contained most of the other roads built during the first decade of railroad construction.



JOHN STEVENS'S LOCOMOTIVE

This locomotive was built by John Stevens at Hoboken, N. J., in 1825. It was the first steam locomotive in America, of which there is a reliable record, which carried people on a track.

By 1840 the railway mileage of the country had reached 2828 miles, but most of the roads were disconnected, short lines, similar to the early street railroads. In their crude construction, too, they resembled these; the rails were wooden

beams, placed lengthwise or end to end, with a strap of iron nailed on the upper surface to protect the wood from wear. On a number of roads, however, iron edge rails had already supplanted this transitional type. The English locomotives, which were the first to be used in this country, being found too heavy and otherwise unsuited to American rails and roadbeds, Ameircan engineers soon began to build their own. Early in their history original methods began to be followed on American railroads, both in the construction of the roadbed and of the rolling-stock.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XIII

The transportation problem at this time was one of obtaining by any method adequate facilities to connect the distant sections of the rapidly growing nation, and to afford to every section an outlet to suitable markets. Problems of engineering, of finance, and of politics had also to be met in furnishing these facilities.

1. Why were improved highways called "turnpikes"? [E. R. Johnson, Amer. Railway Transp., 13.]

2. What were the suggestions made by A. Gallatin in his report of 1807. [Amer. State Papers, XX, 724, 910–921; H. Adams, Life of Gallatin, 350–352; Amer. State Papers, Misc., I, 724–741.]

3. What effect did the building of the Erie Canal have on the commercial supremacy of New York, Philadelphia, and Baltimore? [Tenth Census (1880), IV, 1–3; A. B. Hulbert, Great Amer. Canals, chap. 4; H. C. Adams, Pub. Debts, 330; J. D. Andrews, Rept. on Lake Trade, 282.

4. To what extent has the Erie Canal added to the wealth of New York State? [J. A. Fairlee, The New York Canals, in Quart. Journ. Econ., XIV, 214.]

5. Do you know of any canals in the United States, other than the Erie and Sault Ste. Marie canals, which are extensively used to-day? [Hulbert, Great Amer. Canals; E. R. Johnson, Inland Waterways; E. R. Johnson, Ocean and Inland Water Transportation, 332.]

6. Why did Madison, Monroe, and Jackson veto Federal appropriations for internal improvements? Are such appropriations made to-day? [Messages and Papers of the Presidents, I, 584 (Madison); II, 142, 483–493 (Monroe).]

7. What was the "distribution of the surplus"? [E. G. Bourne, The

Surplus of 1837; J. J. Knox, U. S. Notes, chap. 12; D. R. Dewey, 217–222; A. S. Bolles, Fin. Hist., II, 547; T. Roosevelt, Benton, 143–156; C. Schurz, Clay, II, 118–123; W. G. Sumner, Jackson, 325–331.]

8. Describe the improvements made during this period in some one State. [H. C. Adams, Pub. Debts, 325 (Mich.); Morris, Intern. Improv. in Ohio, Proc. Amer. Hist. Ass., III, 112; Tenth Census, IV, Rep. on Canals and Railroads, VII, Hist. of State Debts.]

9. Describe the repudiation of its debt by some typical State. [W. C. Scott, Repudiation of State Debts; W. G. Sumner, Amer. Currency, 162; C. Schurz, Clay, II, 211; J. L. Schouler, IV, 419–420; R. H. Stoddard, Life of Chas. Butler.]

10. Can a State repudiate its debt? Has the creditor no redress in the courts? How about the Federal government? An individual? [T. M. Cooley, Const. Law, 65; H. C. Adams, Pub. Debts, 8–11.]

11. Describe the early attempts at railroads in this country more fully. [E. R. Johnson, Amer. Railway Transp., chap. 2; A. T. Hadley, Railroad Transp., chap. 2; Tenth Census (1880), IV; H. V. Poor's Manuals of Railroads, *1881*, Intro.; W. H. Brown, Hist. of First Locomotive in America; C. F. Adams, Railroads.]

12. What was thought of Geo. Stephenson's railway in England, and how successful was he? [Adams, Railroads, Chap. 1; W. H. Brown, Hist. of First Locomotive in America.]

13. Has the government built and operated railroads successfully in any country? Do you think the United States government should own the railroads in this country now? [Hadley, Railroad Transp., chaps. 10–13; Johnson, Amer. Railway Transp., chap. 24.]

14. What is a corporation? Are they desirable? [Hadley, Railroad Transp., 42–48; Johnson, Amer. Railway Transp., chap. 6; Talcott Williams, "The Corporation," in Organized Labor and Capital.]

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CHAPTER XIV

SHIPPING AND INLAND COMMERCE (1840–1860)

179. American shipping after the War of 1812. — The story of the American merchant marine must now be taken up again from the point to which its history had been traced. Upon the conclusion of the Napoleonic wars in 1815, the European countries renewed their own carrying-trade in large part and thus deprived our shipowners of the lucrative business they had enjoyed for almost two decades before. With the growing production of cotton, however, for which there was an insatiable foreign demand, the loss of other forms of freight was partially made good. But as equivalent return cargoes could not easily be secured, ship-building languished for some twenty-five years. The tonnage of vessels engaged in the foreign trade remained about the same between 1815 and 1840, with only slight temporary fluctuations, so that in 1839 the registered foreign tonnage was 702,400 tons, or only 27,767 tons more than in 1814. As the population was increasing, however, this really represented a relative falling off, from a per capita tonnage of 13.43 tons in 1810 to 4.25 tons in 1839. The capital of the country was being invested during this period in manufactures, internal improvements, and the development of our internal resources, which offered larger returns than the carriage of ocean freight. The high tariff, too, which imposed duties upon the materials entering into ship-building, considerably increased the cost of construction and equipment; and at the same time, by stimulating our domestic industries, reduced the amount of foreign commerce to be transported. About 1830, moreover, England began to increase her shipping and to bid vigorously for the ocean-carrying trade.

180. Commercial legislation and treaties. — During this period a new step was taken in shipping legislation by the establishment of reciprocal liberty of commerce. By the act of March 3, 1815, all the discriminating duties imposed by former laws, both on the tonnage of foreign vessels and on the goods imported in them, were repealed in the case of the direct trade with any foreign nation which should abolish its countervailing duties against us. In accordance with this act, a commercial treaty with England of July 3, 1815, provided among other things for equality of duties and treatment and no discrimination between England and the United States. But England kept her West Indian ports closed to our vessels after the treaty as before, and we soon retaliated by new discriminating duties. In 1830 England agreed to open these ports and we removed many of the restrictions upon British commerce. As a result our imports from the British West Indies increased from $1,901 in that year to $2,965,585 in 1840.

To meet the absolute prohibition of those States which simply closed their ports to us, Congress in 1817 made our navigation laws still more severe: the prohibition of the coasting trade to other nations was repeated, and ships engaged in foreign trade, unless two thirds manned by American sailors, were taxed fifty cents a ton. But in this act also the door was left open for repeal in the case of foreign nations which should remove their restrictions upon our vessels, and in 1828 another act provided for reciprocity with foreign nations in the indirect or carrying trade. Treaties were accordingly negotiated, which provided for "reciprocal liberty," with France in 1822, Prussia in 1828, and in subsequent years with Hamburg, Bremen, Lubeck, Norway and Sweden, Austria, Russia, Portugal, Holland, Belgium, and Switzerland. Commercial treaties were also signed with most of the Central and South American States.

181. The American clipper. — American ship-builders had during this time developed a type of vessel which was superior to all others with which it came in competition — the mag-

nificent sailing clipper. In the building of wooden vessels both the cost of materials and the skill of our ship-builders gave us an advantage. So superior in speed were they that, according to Levi Woodbury, an American vessel could make three trips to England in the time a British vessel was making two, while the change from square to schooner rig and the use of improved blocks and mechanical appliances reduced the number of seamen to two thirds those required on a foreign

AMERICAN CLIPPER SHIP

The square-rigged vessel reached its highest development in the clipper ships which were turned out in large numbers about 1845. The clipper was built with sharp lines to give it the maximum speed, and with a long, overhanging prow, from which the vessel gained its name. They were especially designed for the trade with China.

ship. The high character of masters and crews also made American vessels preferred by shippers.

Beginning with about 1840 a number of events occurred which combined to stimulate greatly the ship-building industry in the United States, and to give to American sailing vessels the foremost place as ocean carriers in the world. In 1840 the British-China war diverted a large part of the China trade into American hands and led to the building of the

China clippers. This foreign trade was increased by the revolutionary outbreaks in Europe in 1848, by the Crimean War in 1853 and 1856, and by the rebellion in India in 1857. The discovery of gold in California and Australia and the enormous emigration to those countries led to an unprecedented passenger traffic at fabulous rates, which, with the large immigration into the United States after 1846, gave immense profits to shipowners during these years. At the same time the lowering of the tariff in 1846 had reduced somewhat the cost of ship-building in the United States. As a result of this stimulus there was a great over-production of ships: the tonnage engaged in foreign trade grew from 763,838 tons in 1840 to 2,494,894 tons in 1861, the highest figure for foreign tonnage that has ever been reached in our history. Including the ships engaged in the domestic trade and the fisheries, our tonnage was one third that of the world, and was practically equal to that of Great Britain.

182. The introduction of the iron steamship. — During this very period of the supremacy of the American sailing vessel, a change was being effected in ship-building which was destined to revolutionize the ocean-carrying trade This was the substitution of steam for sails, and of iron for wooden hulls. Although steamers had been used for some time in the coasting trade, it was not until 1838 that the *Sirius* and the *Great Western* crossed the ocean propelled by steam alone, the latter taking only fifteen days for the voyage. The utilization of coal in the production of steam (1836) and the invention of the screw propeller (1836–8) contributed materially to the success of ocean steam navigation. In the year 1838 iron ship-building for ocean commerce began.

England immediately took the lead in the construction of iron steamers, while our ship-builders, confident in their superiority, clung to the wooden ship. Nearly 25 per cent. of the total tonnage of vessels built in Great Britain in 1853 were steamers, and a little more than 25 per cent. were of iron. In the United States, on the other hand, although 22 per cent.

of the total tonnage built consisted of steamers, hardly any were of iron. The vessel of the future was to be the iron or steel steamer, and by not changing the material in the construction of their ships our ship-builders gradually yielded first place to Great Britain, which seized the opportunity of regaining her lost position on the seas. The British government encouraged the industry by subsidizing the steamship lines for mail service, beginning with the Cunard line in 1838 and continuing down to the present time. Between 1845 and

THE STEAMSHIP ASIA

The *Asia* was a wooden-hull steamer built for the Cunard line about 1847, for the New York-Liverpool service. It cost $575,000, had horsepower of 816, and took eleven days to cross the ocean. It was provided with side-lever engines and was driven by side wheels, and also carried generous spars and canvas in case of accident. It is a good specimen of an ocean steamer of 1850.

1848 Congress granted subsidies to American steamship lines, of which the Collins line between New York and Liverpool successfully competed with the Cunard line, but opposition to the subsidy policy finally caused the withdrawal of this form of encouragement. Although our tonnage was increasing rapidly, in 1861 only 65 per cent. of our foreign commerce was being carried in American bottoms, as against 92 per cent. in 1807, and 83 per cent. in 1840.

183. Foreign commerce. — Our foreign trade had been greatly reduced by the embargo and the War of 1812, but after the declaration of peace imports and exports both increased enormously, owing to peculiar and temporary circumstances.[1] After 1818 there was a steady decline in our foreign commerce until about 1830, due to tariff legislation, the development of our manufactures and of our internal resources, the passage of the English corn laws, and protective tariff legislation of European countries. In the early thirties, however, the great development in the production of cotton, which now constituted over one half of our total exports, the growth of the West, and the large investments of foreign capital in our system of internal improvements, combined to raise our foreign commerce to over $300,000,000 for the year 1836, the highest figure yet reached. The panic of 1837 and the resulting depression reduced our foreign trade to $125,000,000 in 1843, but between 1847 and 1860, with the brief exception of the year 1857, in which a second panic occurred, the foreign trade of the United States reached the highest point it had ever attained. In 1861 our imports were $353,616,119, and our exports $333,576,057, or a total of $687,802,176. The causes for this expansion have already been mentioned and need not be repeated here. Of the exports cotton constituted about one half, while other agricultural products, gold bullion, and manufactured articles made up about one third of the total. Most of the exports went to Great Britain, and to Germany, Holland, France, and Spain. About half of the imports were manufactured articles from these same countries, while another large item was foodstuffs from the West Indies and South and Central America. The major part of the export trade was carried on from New York, New Orleans, Boston, Baltimore, Mobile, Charleston, and Philadelphia, in the order named.

184. Coastwise trade. — After the discriminating duties of 1789, but even more after the enactment of the law of 1793,

[1] See Chap. 8, sect. 101.

which prohibited foreign vessels from engaging in the coasting trade, the number of vessels engaged in the domestic commerce of the United States increased rapidly. In 1793, the first year in which an accurate list of American shipping was obtained, the tonnage of vessels so engaged was 122,071 tons; in 1817 it was 500,000, and in 1840 it had grown to 1,000,000 tons, owing to the great expansion of the lake and river commerce. In the next twenty years the tonnage more than doubled again, amounting to 2,500,000 tons in 1860. Ever since 1820 the tonnage of vessels in the domestic trade had equalled that in foreign trade, and after 1860 it greatly exceeded the latter. It is impossible to say just how this traffic was divided between the coasting and inland trade, but each branch was expanding.

There was a profitable coastwise trade between northern and southern ports, carried on by northern vessels, which carried New England fish, manufactures, boots and shoes, dry-goods, and other commodities, to the South, to an amount of over $100,000,000 a year. In return they brought back cargoes of southern staples, cotton, tobacco, and also foodstuffs, hay, and similar commodities, both for export and for domestic consumption. The falling off of foreign commerce was amply compensated by the growth of domestic commerce, which provided an outlet for American vessels. Here the sailing vessel was able to hold its own against the steamer. Opportunity for longer voyages was given when the rush to the California gold fields began; this was held to be coastwise trade and was consequently restricted to American vessels and brought in large, though temporary, profits. The building of the Chesapeake and Albemarle Canal, which was completed in 1860, reduced the dangers of the perilous voyage round Cape Hatteras, and by so much aided the coasting trade.

185. Internal commerce. — The inland trade was undoubtedly more important than the foreign trade during this period and was steadily becoming more so. The relation

between these two branches is indicated by a statement of Secretary R. J. Walker, in his treasury report for 1847–48: "The value of our products exceeds three thousand millions of dollars. . . . Of this $3,000,000,000 only about $150,000,000 are exported abroad, leaving $2,850,000,000 at home, of which at least $500,000,000 are annually interchanged between the several states of the Union." There was, moreover, a change in the flow of this internal commerce between different parts of the country. The peculiar triangular movement of goods which had characterized the earlier period[1] was altered by the building of canals and railroads which connected the middle west with the Atlantic seaboard. The Mississippi River trade between North and South continued to increase steadily in volume. The shipment of agricultural supplies from northern farms and later of manufactured goods and coal from the growing industrial communities to southern plantations, with smaller return cargoes of sugar, molasses, West India fruits, etc., gave rise to a flourishing trade on the western rivers. Even after the railroads began to divert the shipment of flour, grain, and provisions to eastern markets, the expanding cotton culture of the lower Mississippi region prevented any falling off in the amount of produce received at New Orleans. In 1845 it was estimated that of the produce of the Mississippi valley shipped to the seaboard one half found its way to market via the canals and railroads to the Atlantic coast. Of the receipts at New Orleans in that same year but 18 per cent consisted of western produce, as compared with over 60 per cent at the beginning of the century. The total New Orleans trade, however, grew from $49,763,825 in 1840 to $185,211,254 in 1860.

186. Trade between East and West. — That branch of internal commerce which consisted of the exchange of goods between the East and the West grew somewhat more slowly, but ultimately outstripped the other. At the beginning of this period most of this trade was via the Erie Canal and

[1] See chap. 12, sect. 165.

PIONEER

FAST LINE,

BY RAIL ROAD CARS AND CANAL PACKETS,

From Philadelphia to Pittsburgh,

THROUGH IN 3½ DAYS:

AND BY STEAM BOATS, CARRYING THE UNITED STATES' MAIL,

From PITTSBURGH to LOUISVILLE.

Starts every morning, from the corner of Broad & Race St.

In large and splendid eight wheel cars, via the *Lancaster and Harrisburg Rail Roads*, arriving at the latter place, at 4 o'clock, in the afternoon, where passengers will take the Packets, which have all been fitted up in a very superior manner, having been built *expressly for the accommodation of Passengers*, after the most approved models of Boats used on the Erie Canal, and are not surpassed by the Boats used upon any other Line.

The Boats are commanded by old and experienced Captains, several of whom have been connected with the Line for the two last seasons. For speed and comfort, this Line is not excelled by any other in the United States.

Passengers for Cincinnati, Louisville, Natchez, Nashville, St. Louis, &c.

Will always be certain of being taken on without delay, as this Line connects with the Boats at Pittsburgh, carrying the Mail

OFFICE, N. E. CORNER OF FOURTH AND CHESNUT ST.

For seats apply as above, and at No. 280 Market Street; at the White Swan Hotel, Race Street; at the N. E. corner of Third and Willow Streets No. 31 South Third Street, and at the West Chester House, Broad Street.

Philadelphia April, 1837.

A. B. CUMMINGS, Agent.

TRAVELING IN 1837

This advertisement shows the character of the transportation service in 1837 and the following decade. In those days the journey from Philadelphia to Pittsburgh took three and one half days. Now it takes less than nine hours.

Great Lakes. Not until 1835 did western produce first find its way in large quantities to the eastern seaboard, but by 1840 grain was already being shipped east from Ohio, Indiana, Michigan, and Illinois, and in the following year wheat was sent for the first time from Wisconsin. The quantity of western grain and flour reaching tidewater at New York by way of the Erie Canal amounted in 1840 to 1,066,740 barrels of flour, and rose to 3,084,959 in 1850, and 4,344,387 in 1860. Though these constituted the bulk of this traffic there was also a considerable movement eastward of pork, bacon, and other provisions, of lumber, and towards the end of the period, of coal, copper, and iron. The west-bound shipments consisted of manufactured goods, such as dry goods, boots and shoes, hardware, nails, machinery, paper, and articles of tin and copper, drugs, medicine, and general merchandise. These were smaller in volume than the east-bound shipments, but were of greater value, a feature which has always been characteristic of the traffic between these two sections. The tonnage of vessels on the lakes grew to correspond with this trade, from 50,000 tons in 1841 to 450,000 tons in 1860.

Primarily responsible for this growing trade between the East and the West was the development of manufacturing in the East, and the opening of foreign markets to American grain. As factories multiplied and cities grew the increasing population created a domestic demand for western agricultural produce, while the abrogation of the English corn-laws and other changes in Europe opened up new markets abroad.

In the transportation of this growing trade railroads became steadily more important.

187. Railroad competition. — While the water routes continued to be the base of all extensive transportation movements, the railroads were now beginning in a few cases to develop a serious rivalry. The carriage of coal over the Reading railroad in competition with the Schuylkill Canal, and of flour over the New York Central in competition with the Erie Canal, showed the economic possibilities of the railway in the

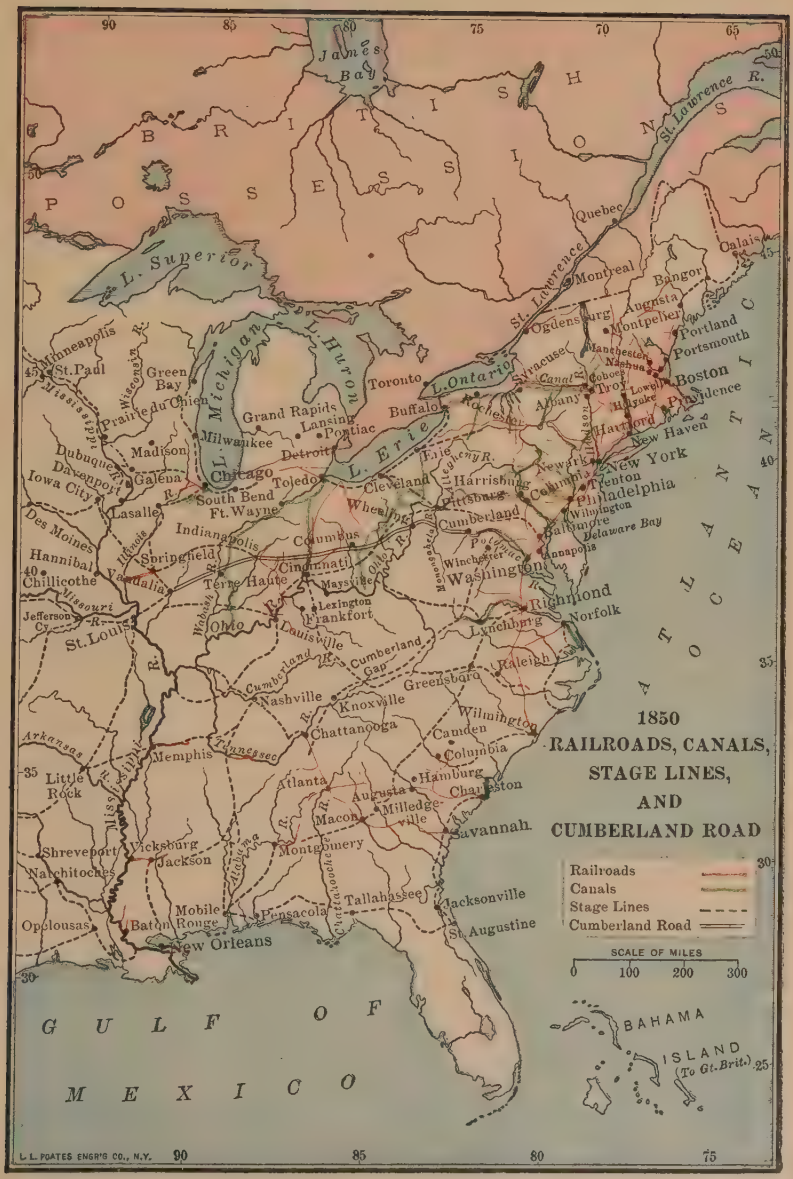
solution of the problem of cheap freight movements. For the most part, however, the railroads that were built in the United States prior to 1850 were regarded as feeders to the lakes and rivers, or as connecting links between the lakes and the Atlantic seaboard. The total amount of traffic moved on the waters in or about the United States still greatly exceeded that carried by the railroads; not until 1860 was the proportion reversed. In that year it was estimated that the railroads carried two thirds of the total internal trade. The freight business, even of the trunk lines, still remained comparatively small; the great development of railways was not to come

Railroad Station at Lancaster, Pa.

The trip from Philadelphia to Pittsburgh was made by the Pioneer Line via Lancaster in three and one half days. Here there was a meeting of the old and new methods of transportation — the emigrant wagon and the railroad.

until after the Civil War. For instance, the total east-bound freight on the Pennsylvania railroad in 1859 was 353,164 tons; westward it was 190,705 tons. On the New York Central the total east-bound tonnage was 570,927 tons; the west-bound was 263,392 tons.

In spite of this small showing, the influence of the railroads in developing the West, in building up its population and moving its produce, and in reducing the cost of transportation, was enormous. About 1850, Henry C. Carey wrote: "Twelve years since the fare of a passenger from Chicago, Illinois



L. L. POATES ENGR'G CO., N.Y.

[by lake and rail to New York City], 1500 miles, was $74.50. It is now but $17. . . . Twelve years since the cost of transporting a bushel of wheat from Chicago to New York was so great as effectually to keep the grain of that country out of the market. Now a bushel of wheat is transported the whole distance, 1500 miles, for 27 cents. A barrel of flour can be transported from Chicago to New York for 80 cents." Indeed, it may be said that without the railroads the increasing produce of the West could not have been marketed at all.

188. Railroad building. — After 1840 a number of mechanical, engineering, and manufacturing improvements were made in the United States which greatly facilitated railroad construction. Perhaps the most important was the substitution of iron rails for the flat strips which had previously been used, and which now permitted both a heavier load and greater speed; about 1844 the manufacture of iron rails began in the United States to supply the increasing demand. During the decade 1840–50 railroad building was most rapid in New England and the middle States; and by 1850 there were 9021 miles of railroad in the country. In the following decade the middle and South Atlantic States developed their transportation systems on much the same lines as they at present exist, while the then western States, between the Alleghanies and the Mississippi, entered upon an era of marvelously rapid construction. Chicago was connected with New York in 1853, and the following year the Mississippi was reached. In 1855 St. Louis was given through rail connection with New York, and the building of lines into the Northwest was begun, one of which reached the Missouri River in 1858. The total mileage of the country in 1860 was 30,635 miles, or more than three times what it was ten years before.

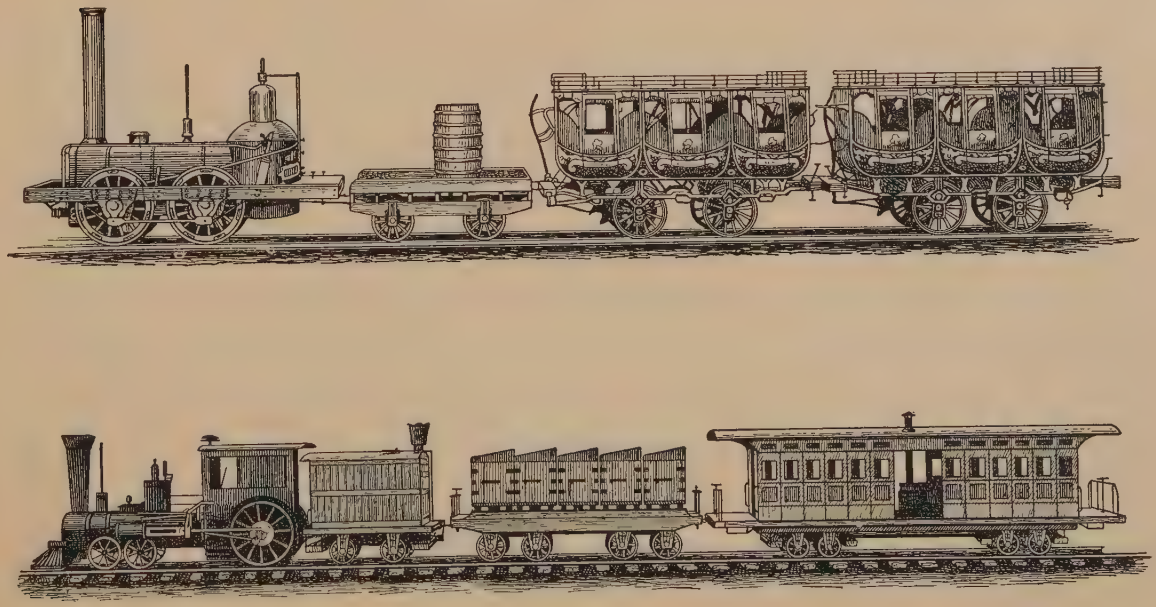
Owing to causes already enumerated,[1] railroad building at this time was left in the hands of private individuals or corporations; but although the States did not engage directly in the construction of railroads, they gave valuable assistance

[1] Chap. 13, sect. 176.

by subscriptions of stock, loans of State credit, and finally by land grants. The Illinois Central was the first road to receive a land grant, in 1851, from the State of Illinois, but the example was quickly followed by Missouri, Arkansas, Michigan, Wisconsin, Iowa, Florida, and Louisiana. Up to 1861 there had been granted for internal improvements, mostly railroads, 31,600,842 acres of public lands.

189. Improved means of communication. — Probably the most important single event of this period was the invention of the electric telegraph. As early as 1832 Samuel F. B. Morse was experimenting with a plan of telegraphic communication, and in 1838 exhibited his invention to congressional committees; in 1843 Congress voted him an appropriation of $30,000 to establish a line between Washington and Baltimore, which was put into successful operation in June, 1844.[1] By 1860 about 50,000 miles of telegraph were built in the United States, connecting all the important cities of the Union; the first line to San Francisco was completed the following year. The postal system was also improved and extended during this period; in 1860 there were about 186,000 miles of postal roads in operation. Owing also to improvements in the printing press — the cylinder press was first operated in 1847 — and in the manufacture of paper, the number of newspapers had greatly increased. At the end of this period there were nearly 400 daily newspapers issued in the United States and no less than 3266 daily, weekly, bi-weekly, and monthly papers, aggregating some 10,000,000 copies. In 1850 the rate of postage on a prepaid letter was reduced to three cents for any distance under 3000 miles. The effect of these improved systems of communication on the thought and development of the country was very great.

[1] The electro-magnetic telegraph of Cook was patented in England in June, 1837, and in July of the same year Steinheil put his telegraph into operation between Munich and Bogenhausen.



DEVELOPMENT OF THE RAILROAD TRAIN

The locomotive and cars in the upper picture comprised the first train drawn by steam in the State of New Jersey, Nov. 12, 1831. The passenger cars show the early use of stage bodies on car trucks. In the lower picture is shown the evolution of the American type of passenger car, with end doors and central aisle.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XIV

The foreign merchant marine gave rise to problems of individual initiative and ability to meet foreign competition in an open field. Foreign trade, both imports and exports, presented quite a different set of problems, while internal commerce was in still another category. Questions of competition pressed to the front as the railroads developed.

1. In what way did the tariffs of 1824, 1828, etc., increase the cost of ship-building? [F. W. Taussig, Tar. Hist., 76, 90, 93; F. W. Taussig, State Papers, 317–385 (Webster's speech); D. R. Dewey, 179; W. M. Grosvenor, Does Protection Protect? chap. 5.]

2. Describe a voyage to California in a sailing clipper. [R. H. Dana, Two Years before the Mast.]

3. Tell all about a clipper ship and a specimen voyage to, say, China or Australia. [G. F. Train, Autobiography; W. L. Marvin, Am. Merch. Marine, 253; E. R. Johnson, Ocean and Inland Water Transp., 20.]

4. What was the substance of the shipping acts providing for "reciprocal liberty of commerce?" Do you consider that they were advantageous to the American merchant marine? [W. Bates, Amer. Nav., chap. 8; Bates, Amer. Mar., 173; W. L. Marvin, chap. 9.]

5. Why did England turn so readily to the construction of iron ships and the United States so slowly?

6. Why was the use of steam as sole motive power delayed so long for ocean voyages after its use on rivers and along the coast?

7. Did the subsidy policy succeed in 1854? Would it be desirable to introduce this system now? [Bates, Amer. Mar., 142, 148; K. Coman, 230–232; Marvin, chaps. 12, 18; Johnson, Ocean and Inland Water Transportation, chap. 22; R. Meeker, Shipping Subsidies.]

8. What were the principal shipping ports before the Civil War?

9. What were the causes which led to the expansion of our foreign commerce after 1846? [W. C. Webster, Gen. Hist. of Com., 361; Taussig, Tar. Hist., 116–122; U. Rabbeno, Amer. Com. Policy, 184–199.]

10. What were the principal exports and imports of the United States during this period? [T. Pitkin, Statistical View, chaps. 3, 6; U. S. Treas. Reports.]

11. What changes were taking place in the produce that went down the Mississippi to New Orleans? What were the reasons? [Intern. Commerce, Treas. Rep., *1887*, 209.]

12. What effects did the railroads have upon the development of the West? [J. G. Thompson, The Rise and Decline of the Wheat-growing Industry in Wisconsin.]

13. Describe the experience of some State in its early dealings with railroads. [J. W. Million, State Aid to Railways, 1–26.]

14. Describe the invention of the telegraph and the difficulties in its early application. [E. Bryn, Progress of Invention, chap. 3; A. Jones, Hist. Sketch of Electr. Telegr., chap. 8; N. Sargent, Public Men and Events, II, 193.]

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CHAPTER XV

CURRENCY AND BANKING

190. State banks. — Upon the expiration of the charter of the First Bank of the United States in 1811 State banks increased greatly in number — 120 new banks being chartered and put into operation in the three following years — and undertook to furnish the country with bank-notes and credit currency. The dissolution of the First Bank of the United States caused the export of $7,000,000 in specie which had been invested by Europeans in its stock. There was thus a vacuum in the currency of the country which needed to be filled, and this the State banks proceeded to supply. They did not, however, limit themselves to the normal needs of trade, but issued their notes in excessive quantities. The demand for capital was strong, and this was furnished the mercantile community by the banks in the form of bank-notes; the loose credit system of selling public lands in the West led to demands for loans in that section; and the disorganization and needs of the War of 1812 were additional factors leading to expansion, especially since after the suspension of specie payments in 1814 the government accepted State bank-notes in payment of public dues. Add to all this the fact that there was as yet no widespread system of publicity or of knowledge as to the condition of banks or the state of the currency, and it can scarcely be a matter of wonder that the currency was inflated. Between 1812 and 1817 the number of banks trebled and the bank-note circulation increased from $45,000,000 to $100,000,000. Most of this increase took place in the West; the older and more developed sections of the country had already learned some of the principles of good

banking and were putting them into practice. But so insufficient was the specie reserve held by the banks to withstand any special shock, that when Washington was captured by the British in 1814 all the banks, except those in New England, were forced to suspend specie payments. The country was again upon a paper money basis, differing only from that of the Continental currency in that it was now issued by banks instead of by the government. All the old evils appeared, of over-issue, depreciation, and inequality in value. The notes of the New York banks were 10 per cent. below par, those of Washington and Baltimore 22 per cent., while in the West some of them fell as low as 50 per cent. below par. But, bad as it was, the people were compelled to use this depreciated and fluctuating currency, since there was no other to take its place.

191. Second Bank of the United States. — At this juncture the Second Bank of the United States was established. Two reasons were advanced for its organization at this time (1816): in the first place it would afford assistance to the treasury, which was financially embarrassed on account of the war; and secondly, it would act as a regulator of the currency. The Bank was chartered in 1816 for twenty years, with a capital of $35,000,000 of which one fifth was subscribed by the Federal government. The circulation was limited to the amount of the capital, and notes were made payable in specie on demand and were receivable in all payments to the United States. It was expected that the circulating notes of the Bank, being redeemable in specie on demand, would compel the State banks to resume specie payments or would drive the depreciated local bank-notes out of circulation. Unfortunately, however, the Bank itself was very badly managed for the first three years of its existence: only a part of the specie reserve was paid in, the notes were over-issued, and loans made on insufficient security. It consequently contributed to the evils of speculation and reckless banking which characterized this period, instead of reforming them. In

1819 the Bank was almost bankrupt, and was saved from ruin only by the appointment of a new president and a thorough reorganization. A severe contraction of circulation and loans followed, but while this saved the Bank, it could not avert the financial storm which had been brewing during years of speculation. This broke in the crisis of 1819, which was the first general crisis in the United States. Its causes were complex, and bad banking formed only one. In addition may be mentioned the speculation in western lands, the rapid commercial expansion, and the unstable position of the manufacturing industries which had grown abnormally during the embargo and the war and had afterwards been exposed to foreign competition. At the same time the State banks contracted their note circulation from $100,000,000 in 1817 to $45,000,000 in 1819, and thus reduced the credit facilities at the very time they were most in demand. Specie payments were again generally suspended, prices fell disastrously, failures occurred in every part of the country, industries stopped, and many laborers were thrown out of work. A period of readjustment ensued, which continued in some parts of the country for three or four years.

192. End of the Bank. — The career of the Bank during the next few years was uneventful. It increased its circulation, and as these notes passed at par, the State banks were compelled, on pain of losing their circulation, to limit their issues and maintain specie payments. In a measure it thus acted as a "regulator of the currency" But this fact made it very unpopular in the South and West, where its influence was most felt and where public opinion did not support such action. Several of the States attempted to tax the branches that were established within their borders, but from this they were debarred by the adverse decisions of Chief-Justice Marshall in *McCullock* v. *Maryland* (1819) and *Osborne* v. *United States Bank* (1824). While the Bank was thus an object of dislike in parts of the country there seems no evidence to show that it was badly managed. Opposition to the Bank

was, however, brought to a head by President Jackson, who was strongly opposed to a central bank, which he regarded as a dangerous monopoly. The unseasonable political activity of the Bank but confirmed this view in the mind of one by whom political opponents were regarded as enemies of the commonwealth. There were many persons also who were opposed to all bank-note issues, as they desired to see specie in circulation. The question of rechartering the Bank was made an issue in the presidential election of 1832, and as this resulted overwhelmingly in favor of Jackson, the Bank was refused a recharter and its affairs were wound up. This brought to an end the policy of regulating the credit paper currency of the country by means of a great central bank. In its place came the policy of permitting the State banks to furnish the necessary credit money, and of having the government keep its own funds and make use only of specie, which, however, was not put into practice for some years. In this way it would enforce the use of a large amount of coin in the country and would restrict the undue expansion of bank-note issues.

193. Inflation of the currency. — With the withdrawal of the United States Bank the way was open again for an expansion of their circulation by the State banks, and these quickly availed themselves of the opportunity. The speculative enthusiasm of the times, the internal improvements by the States, and the investments in western lands created a great demand for capital and credit, and many local banks were hastily organized to secure the enormous profits that seemed promised. This expansion was in part made possible by the deposit of the government funds in selected State banks, after their withdrawal from the Bank of the United States. The active speculation in the public lands especially led to the expansion of bank credit for the purpose of financing these investments. As the government price was fixed and the market price frequently rose far beyond this, there was active competition on the part of speculators to borrow from the banks. These granted loans readily on the security of

government land, and borrowers used these loans to purchase their land from the land agents. The purchase money was often redeposited in the same bank, where it again served as the basis of another loan for the purchase of more land. From an average of less than $2,000,000 a year before 1830 the receipts to the Federal government from the sale of public lands rose to $25,000,000 in 1836. This vast speculation in the public lands could not have been financed without a corresponding inflation of their loans and circulation on the part of the banks. How far this proceeded is clearly indicated in the following table:

EXPANSION OF BANK CREDIT, 1829-1843
(IN MILLIONS OF DOLLARS)

Year	No. of banks	Capital	Circulation	Loans
1829	329	110.2	48.2	137.0
1834	506	200.0	94.8	324.1
1836	718	251.9	140.3	457.5
1837	788	290.8	149.2	525.1
1843	691	228.9	58.6	254.5

194. The panic of 1837. — This mad dance of speculation was brought to an abrupt close by the panic of 1837. The causes of this widespread crisis were numerous and complicated, but at the bottom it was due to undue business expansion with accompanying extension of credit and speculation. Many factors contributed to this expansion, such as the prevalence of international peace, the foreign demand for our cotton and other agricultural products, the building of internal improvements which opened up rich prairie land to cultivation and to markets, the distribution by the Federal government of the surplus revenue of 1836, and the widespread land speculation. It was a period when men's imaginations were stirred, and the prospects of the future were

mortgaged to a reckless extent. The immediate cause of the crisis was the so-called specie circular of the treasury department of July 11, 1836; this was an order to the government agents for the sale of public lands, that they should thereafter take in payment only specie, and the notes of specie paying banks, but not those of non-specie paying banks. This placed a check upon land speculation and cramped the operations of the western banks, whose situation was made more serious by the failure of American crops in 1835 and 1837. The failure of important business houses in England at the end of 1836 caused a lessening in the demand for cotton; the high prices declined and southern planters and banks were involved in the crash of the prevailing credit system. To this may possibly be added the reduction in the tariff, which had been going on since 1833, and which injuriously affected the manufacturers of the East. On May 10, 1837, the banks of New York City suspended specie payments; within two months 250 bankruptcies occurred. The value of real estate depreciated more than $40,000,000 in six months. A period of liquidation and readjustment ensued, which was followed by a severe depression lasting five or six years. The bank-note circulation was rapidly contracted from $149,000,000 in 1837 to $58,000,000 in 1843, while the sales of public land steadily fell off from the high-water mark of 20,000,000 acres in 1836 until they reached about 1,000,000 acres in 1841.

195. The coinage acts of 1834 and 1837. — Little gold or silver was as yet mined in the United States, and the excessive issue of bank-notes had prevented the accumulation of any large stock of specie in the country. Coins were nevertheless always to be found in the commercial centers of the country. They consisted for the most part of a heterogeneous collection of foreign coins, often clipped and mutilated. Spanish dollars and subdivisions thereof formed the bulk of the metallic money. No American silver dollars were coined from 1806 to 1836, and gold had disappeared from circulation under the ratio of 1792, which undervalued it. Gold had recently been

discovered in North Carolina and Georgia in sufficient quantity to make it appear likely that the domestic monetary needs of the people might be supplied from this source. By the acts of 1834 and 1837 the ratio between gold and silver was changed from fifteen to one to sixteen to one; that is, the weight of the gold dollar was reduced from 27 grains to 25.8 grains nine tenths fine, the weight of the silver dollar remaining the same (412.5 grains nine tenths fine). As this slightly overvalued gold, it came rapidly into circulation again in place of silver, and silver coins began to disappear. The lack of subsidiary silver was a serious disadvantage in retail trade, and doubtless contributed to the demand for a larger supply of bank-notes. Under the circumstances some form of paper money would seem to have been unavoidable.

After 1840 the silver dollar was rarely seen in circulation, and after the gold discoveries of 1848 even the fractional coins disappeared. When the smaller coins were withdrawn the inconvenience became so great that Congress passed the law of 1853, debasing the fractional coins in order to keep them in circulation by decreasing the amount of pure silver in each. Up to this time the half dollars, quarters, and dimes had contained exact fractions of the amount of silver in a silver dollar; the same causes that led to the withdrawal of silver dollars from circulation removed also the fractional silver. The act of 1853 sought to remedy this by reducing the amount of silver in the fractional coins and making them mere token money. Accordingly the smaller coins remained in circulation, though silver dollars practically disappeared from use. Gold coins of course became general.

196. Discovery of gold in California. — In January, 1848, James Marshall, while building a mill for John A. Sutter in Eldorado County, noticed shining particles of gold in the mill race. When this discovery was followed up, rich deposits of gold were found in the neighboring region. Immediately the news spread to the surrounding settlements, and more gradually to the East and to Europe. A great immigration of gold

hunters set in; around Cape Horn, across the Isthmus of Panama, and over the western plains by wagon, they thronged to the gold fields. By the end of 1849 more than 80,000 immigrants — the "forty-niners" — were settled in California. The first and most important result of this discovery was an

SUTTER'S MILL AND RACE

Sutter's saw-mill, where gold was first discovered, was situated about sixty miles from Sutter's Fort, now called Sacramento. The news of the discovery spread like wild-fire and led to a remarkable rush to the gold fields. So momentous were its effects that President Polk called attention to it in his annual message of that year.

enormous increase in the production of gold: in 1850 California produced $36,000,000 which was equal to the annual average production of the whole world during the previous decade. In 1851 the production reached $56,000,000, and in the same year gold was discovered also in Australia. As a result of these discoveries there was a large addition to the world's

supply of specie, thus raising the general level of prices; immigration was greatly stimulated, the far West was more rapidly settled, and the construction of a transcontinental railroad was hastened.

197. The independent treasury system. — After the end of the United States Bank in 1836 the government for some years deposited its funds in selected State banks; but in so doing it was exposed to all the dangers and inconveniences connected with an inadequately regulated system of banking. It therefore instituted the plan of caring for its own funds, temporarily in 1840 and permanently in 1846, by means of the so-called independent or sub-treasury system. According to this the government was to separate itself completely from the banks, and was neither to establish a central bank nor to make use of the State banks. It would not use them as fiscal agents nor deposit government revenues with them; nor would it receive bank-notes in payments to itself. The government was to establish sub-treasuries, which should collect all the revenue in specie, and make all disbursements in cash through its own officials. By using specie exclusively it would ensure the presence of a large amount of coin in the country and would lessen the demand for bank-notes. At the same time it was expected that the banks, since they would no longer receive government deposits, would not be able to expand their circulation so greatly as they had done. This hard money policy of the government would thus effectively hold the banks in check and act as a regulator of the currency. An official investigation of the independent treasury system made in 1855 stated that both these results had been secured, and also that it prevented losses to the government and gave to the treasury better control of its funds. Down to the period of the Civil War it proved safe, economical, and effective.

198. Banking, 1837–1860. — After the revulsion of 1837 and resulting depression, the number of banks and their business, as indicated by their loans and discounts, remained

fairly steady for a decade. After 1853 another period of expansion and speculation set in which led to a rapid extension of circulation and of loans while the specie reserve increased but slightly. The rapid expansion is indicated in the following table:

BANKING EXPANSION, 1843-1860
(IN MILLIONS OF DOLLARS)

Year	No. of banks	Capital	Loans	Circulation	Specie
1843	691	228.9	254.5	58.6	33.5
1847	715	203.1	310.3	105.5	35.1
1853	750	207.9	408.9	146.1	47.1
1857	1416	370.8	684.5	214.8	58.3
1860	1562	421.9	691.9	207.1	83.6

The stability and soundness of the banks differed greatly in different parts of the country. In Massachusetts and New England generally, under the Suffolk system, and in New York under the safety fund and the free banking or bond deposit systems, sound banking methods were gradually developed, but in the western States the losses by bad banking were still very great and extraordinary looseness in legislation and administration prevailed. Perhaps the most serious practical defect was the depreciation and lack of uniformity of note issues, which resulted in great confusion in the currency. "A country merchant," says Dewey, "might receive and pay out a thousand kinds of notes, some good, some doubtful, some presumably bad, and this condition grew worse as the circle of business activity was enlarged with the construction of railroads." At one time as many as 5400 different kinds of spurious or counterfeit notes were recorded as being in circulation. By the establishment of the national banking system in 1863, most of these early evils were brought to an end.

199. The panic of 1857. — Our third crisis was primarily financial, and affected the financial institutions and centers

of the country. It was, however, due to industrial causes, such as the over-investment of fixed capital in the extraordinarily rapid construction of railroads, — over $1,250,000,000 was invested in railroads between 1830 and 1860, — to the opening up of the West, and to the development of our mineral resources in Pennsylvania and elsewhere. Some writers have claimed, with less reason, that the tariff of 1857, enacted a few months before, was partly responsible for the crisis. Much more important was the stimulus of rising prices occasioned by the enormous additions to the gold supply from California and Australia. In fact the whole period of the westward movement, from 1815 to 1860, was one of restless endeavor and of speculative enterprise. When not held in check it sought an outlet through the channels of credit and led to banking excesses; even disaster could restrain it for only a brief period. Now that the additions to the metallic currency of the country were so large and industrially so stimulating, it was inevitable that speculative activity should be carried to an extreme.

In August, 1857, the Ohio Life Insurance and Trust Company, which had five million dollars tied up in railroad loans, and whose New York agent had defaulted, failed with large liabilities to eastern institutions. A panic followed in New York City, and most of the banks were forced to suspend specie payments. Many of the western railroads went into bankruptcy, as did numerous other speculative enterprises. In 1857 there were almost 5000 failures. The country quickly recovered from the effects of this panic, however, and by the end of the decade showed no trace of its effects.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XV

The currency problem of a new country is always how it may most economically provide itself with the necessary media of exchange, and to this several answers were given by the United States during this period. In this process other questions, such as the relation of the government to banks, the custody of its funds, coinage, and related matters had also to be settled.

1. Why was the First United States Bank refused a re-charter? [H. White, Money and Banking, 258; K. Coman, 154; C. A. Conant, Mod. Banks of Issue, 292; H. Adams, Hist. of U. S. of America, V, 208.]

2. What services did the First and Second Banks of the United States perform for the government? [D. R. Dewey and J. T. Holdsworth, The First and Second Banks of the United States, Nat. Monetary Commission, *1910*, 42–48, 58–63, 119–122, 211–220; Conant, Mod. Banks of Issue, 340–357; Catterall, Second Bank of the U. S.]

3. Why was the Second United States Bank refused a re-charter? [White, Money and Banking, 291–314; also in Sound Currency, IV, No. 18; Conant, Mod. Banks of Issue, 302–309; Coman, 193–197; J. J. Knox, Hist. of Banking, 62–79; W. G. Sumner, Jackson, chaps. 6, 11; Dewey, Financial Hist. of U. S., 198–203.]

4. Would there be any objection to-day to the establishment of another central bank like the Second Bank of the U. S.?

5. Why were there no silver dollars coined between 1806 and 1836? [J. L. Laughlin, Hist. of Bimet., chap. 4; Sumner, Amer. Cur.; 103–113; D. K. Watson, Hist. of Amer. Coinage, 73–77.]

6. Why was the ratio changed in 1834? [Watson, Hist. of Amer. Coinage, chap. 5; Dewey, 210–212; as above.]

7. What were the methods of a wild-cat bank in the fifties? [White, Money and Banking, chap. 12; D. Kinley, Independent Treasury of the U. S.]

8. If the demand for money by the settlers in a new country is not a correct interpretation of their needs, what is it that they want? [F. A. Walker, Money, Trade, and Industry, 82; A. Smith, Wealth of Nations, Book 4, chap. 1; C. J. Bullock, Mon. Hist., 74–78.]

9. What is the effect on prices of a large addition to the money supply of a country? [Any text on economics; see Index, "Money."]

10. Describe the discovery of gold in California in 1848, and its effects. [Harvey, in Atl. Mo., 1911; G. Bancroft, Hist. of Pac. States, XVIII; J. D. B. Stillman, Seeking the Golden Fleece; T. Taylor, El Dorado.]

11. Compare the panics of 1819 and 1837. [T. Dwight, Travels, I, 218–222; Conant, Mod. Banks of Issue, 624–628; Turner, Rise of New West, chap. 9; A. B. Hart, Slavery and Abolition, chap. 20; T. Burton, Crises and Depressions.]

12. What caused the panic of 1857? [Coman, 242–243; Sumner, Amer. Cur., 169–187; C. D. Wright, Ind. Depressions, 56–60; Dewey, 259–264; Burton, Crises and Depressions, 282–286.]

13. Did the westward movement lead to speculation? [T. Flint, Recollections, 198–207; T. Flint, Letters, 64–82; A. Trollope, No. Amer., I, 143–146, 160; F. A. Michaux, Travels, 188–194; F. J. Turner, Rise of New West, chaps. 5–7.]

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CHAPTER XVI

POPULATION AND LABOR

200. Growth of the population. — During the first half of the nineteenth century the population of the United States grew steadily and rapidly, increasing each decade about thirty-four per cent., which is equal to a doubling of the population every twenty-five years. From 5,300,000 in 1800 it grew to 17,000,000 in 1840, and 31,000,000 in 1860. Most of this increase was due to the natural increase of births over deaths, as the additions through immigration were not yet important. It has been estimated that about 160,000 immigrants came to this country between 1800 and 1820. From 1820, when statistics of immigration first began to be gathered, until 1840, the number of aliens was 750,949. During the twenties immigration was small, but beginning with 1832 it increased rapidly, and by 1840 had reached 84,066 for the year. But small as it was, it proved a disturbing element in the industrial development of the period. Most of these early immigrants were English and Irish. The latter were apt to be lawless and frequently engaged in riots; they furnished the unskilled labor for the construction of works of internal improvement. Many of the English were paupers who were furnished passage to this country by the parish authorities; but under the existing English poor-law this did not necessarily indicate inefficiency or disgrace.

The increase in population was widely distributed, but the West showed the most marked growth and the North grew more rapidly than the South. The westward movement was the most significant phenomenon of this period and

was filling the western states with farmers and home-owners. As yet but a small fraction of the people lived in cities, and no one of these was very large. New York City in 1830 contained less than 200,000 persons, and in 1840 only a little over 300,000. Not only were the cities small, but the interests of the people were still predominantly rural and agricultural. In 1800 only 3.9 per cent., and in 1840 only 8.5 per cent., of the total population of the United States lived in cities of over 8000 inhabitants; by 1860 the proportion was 16 per cent. Still, the movement toward the city may be said to have begun in the decade 1820–30, when it first became perceptible.

201. Population and immigration. — Between 1840 and 1860 the population increased rapidly through natural causes, doubling about once in twenty-five years. At the same time the country was receiving enormous additions to the labor force through immigration. The potato famine in Ireland in 1846, the political disturbances in Europe in 1848, and finally the gold discoveries in California in the same year, brought thousands of immigrants to this country. The first great wave of immigration took place in the decade following 1845, and consisted largely of Irish, Germans, English, and French. The Irish settled for the most part in the eastern cities, while the Germans and English took farms in the central States. The colonizing movement of the far West was effected chiefly by those of native birth, who gave place to the newcomers in the eastern and central States and pushed on to the frontier. The annual arrivals of foreign born jumped from 80,289 in 1841 to 234,968 in 1847, and to 427,833 in 1854, a figure that was equalled only once in the next twenty-five years. The number of persons of foreign birth living in the United States was 2,240,535 in 1850, and 4,131,866 ten years later. Such a large infusion of foreign blood quickened the movement of the population and developed the habit of change and enterprise. The total population of the country grew from 17,000,000 in 1840 to 31,000,000 in 1860.

202. The growth of the industrial city. — The movement of the population to the cities, which was first perceptible in the twenties, became marked after 1840. In this year there were 44 cities in the United States with a population of 8000 or more, but by 1860 the number had grown to 141. The percentage of the population living under these urban conditions increased from 8.5 in 1840 to 16 in 1860. Then, as now, the chief causes of this urban concentration were the improvements in the means of transportation and the increasing use of machinery. Population was massed in the growing factory towns in order to supply the needed labor for the expanding manufactures, while the western prairie and southern cotton-fields furnished the necessary food and raw material. The manufacturing towns of New England grew the fastest, and places like Lowell, which were unheard of in 1830, had grown to be flourishing cities in 1860. New York City grew during the twenty year period 1840–60 from 300,000 to 800,000. As a result of this rapid increase of urban population there arose problems of housing, of overcrowding, insanitary conditions, cellar dwellings, and high rents, which were gradually corrected by new building. Most of this industrial development took place in the North, where there were four times as many towns of over 8000 inhabitants as in the South. Such cities as had grown up in that section of the country were less industrial than commercial, and depended for their prosperity upon the cotton, tobacco, and sugar trade rather than upon textile or iron manufacturing. Cotton presses and warehouses, not factories and foundries, filled the business sections and gave employment to labor. In the decade 1850–60 the movement to the cities slackened perceptibly, owing to the gold discoveries and the rush to the far West. Not until 1880 did the drift cityward proceed again as rapidly as it did between 1840 and 1850.

The following table shows the growth of the population and its distribution from 1790 to 1860:

THE POPULATION OF THE UNITED STATES, 1780–1860

Year	White	Colored	Total	Immigration during decade ending with year	Percentage of total in towns of 8000 inhabitants or over	Percentage of growth of population during decade ending with year
1790	3,172,006	757,208	3,929,214		3.35	.....
1800	4,306,446	1,002,037	5,308,483	about	3.97	35.1
1810	5,862,083	1,377,808	7,239,891	200,000	4.93	36.4
1820	7,862,166	1,771,656	9,633,822		4.93	33.1
1830	10,537,378	2,328,642	12,866,020	143,439	6.72	33.5
1840	14,195,805	2,873,648	17,059,453	599,125	8.52	32.7
1850	19,553,068	3,638,808	23,191,876	1,713,251	12.49	35.9
1860	26,991,491	4,441,830	31,443,321	2,598,214	16.13	35.6

203. Industrial organization. — Although a beginning had been made in the introduction of the factory system, it had not yet developed so far as to bring about a clear-cut separation of classes into employer and employee. Down to the twenties industry was still organized essentially as it had been during the colonial period. The master worked side by side with his journeymen and apprentices, and was not sharply distinguished from them by either his earnings or social position. Hand tools were still in general use and goods were usually made to the order of the customer. Conflicts over wages or hours were consequently infrequent during this period. This stage of industrial organization was completely altered about 1820 by the extension of markets in the United States, due to the growth of the population and improved transportation facilities; the invention and introduction of machinery had, according to a leading authority, only a secondary effect and followed rather than preceded the widening of the markets.

With the extension of waterways, highways, railroads, and banking facilities, there developed a new class of merchant-capitalists or merchant-manufacturers, who took over the wholesale business now made possible by the wider markets.

The former master became merely the boss or employer of labor, and sold his product to the wholesaler instead of to his customers; he no longer even owned the raw materials which he worked up. His profits now depended upon his skill in organizing and directing labor rather than in the sale of his product. The journeyman consequently found himself exposed to new forces of competition and his wages and standard of living threatened: prison labor, sweatshops, and distant localities all tended to force down the rate of wages. Against these conditions labor first began to organize.

204. Early labor organizations. — The period from 1820 to 1840 is called by Professor Commons "the awakening period of the American labor movement." There had been organizations of labor before this, with occasional strikes and several trials for conspiracy, but the real labor movement did not begin until 1827, when the "Mechanics Union of Trade Associations" was organized in Philadelphia. This was only temporary, however, and the first important national trades union was organized in 1834; it was a union of different trades for a common object and brought together delegates from widely separated sections of the country. National conventions were held for three years before it finally disappeared with the panic of 1837. The early labor movement in the United States did not spring from factory conditions; indeed the factory system was at that time almost entirely outside the labor movement, since most of the early factory workers were women and children and the factories were as yet confined to the cotton industry. It arose rather as a protest against the merchant-capitalist system, which was reducing the journeyman and the master-mechanic to a common level of wage dependency. The issues that were emphasized in the trades-union period of the thirties were "hours of labor, wages, prices, paper money, public employment, factory legislation and the competition of women, prison competition, and freedom of the public lands." [1]

[1] Documentary History of American Industrial Society, V, 33.

The long hours of labor and overwork first demanded attention. Against the farmer's "sun to sun" the city mechanic raised the standard "six to six." Successful strikes in Philadelphia in 1835 initiated a movement that culminated in President Van Buren's famous ten-hour order in 1840 for all public establishments. High prices increased the cost of living and made the position of the wage-earner increasingly difficult; consequently the workingmen in 1835 favored hard money and opposed bank inflation, which was sending prices up to unheard-of heights. For instance, wheat flour in New York, which cost $5.00 a barrel in 1834, had risen to $12.00 in March, 1837; and all the necessities of life rose in similar proportion. The workingman also demanded that the public lands, which were largely in the hands of speculators, should be secured to the people, and thus afford an outlet to the oppressed wage-worker.

This early labor movement ended in 1837. The employers formed a counter-organization in New York and in 1830 secured the conviction of twenty striking tailors on a charge of conspiracy. The workingmen as a result of this went over to the Equal Rights Party and endeavored to secure a redress of their grievances by means of political action. The panic of 1837 gave the final blow to a movement that was already disintegrating, and after this attention began to be given more to panaceas and legislation.

205. Robert Owen. — The visit of Robert Owen to the United States in 1825 gave a rather fantastic turn to the humanitarian and labor movement of this period. Owen was the manager and part owner of a factory at New Lanark, Scotland, in which he had successfully introduced many reforms, such as the shortening of the working day, the prohibition of child labor, and the establishment of schools. He developed a far-reaching scheme of economic and social reform, and as he was unable to carry out all his plans at home he came over to this country to make further experiments, unhampered by opposition. He preached the doctrine of

communism to the members of Congress and to audiences in all the principal cities. An attempt was made to carry out his plan in a communist society which he founded at New Harmony, Indiana. A tract of thirty thousand acres was purchased and an invitation extended to "the industrious and well-disposed of all nations" to join in founding a community in which the principles of human brotherhood and economic equality should govern. An incongrouous crowd of some nine hundred persons responded to this appeal, but as no test of their qualifications or motives was made, many of them proved to be shiftless and inharmonious. Although Owen himself spent some $200,000 in this experiment it proved a failure, and went to pieces after a precarious existence of about two years. Eight or ten other communities were organized on the same basis of communism and human brotherhood, but they were equally short-lived. But in spite of these practical failures, the influence of Owen's idealism survived, and later found expression in other socialistic utopias.

206. Industrial and economic changes. — The material development of this period, the spread of the factory system with its attendant growth of a distinct wage-earning class, and the improvement in the means of communication, had all served to break up the old economic levels and to introduce active elements of change. Corporations began to take the place of individual enterprises, and the first beginnings of monopolies drew forth political and industrial protest, which found expression in the platforms of the labor party and in widespread labor agitation. On the whole, however, corporations were regarded favorably, and even indulgently, during this period. The great problem in relation to capital was how to secure the needed supplies and concentrate them under one management. As long as the chief industries had been agriculture and commerce, this problem had not presented any serious difficulties. But now that attention was being directed to banking, manufactures, and transportation, some means had to be devised for bringing together the neces-

sary capital. The solution of the problem was found in the development of corporations, and this proceeded rapidly during this period. Not only were charters freely granted to banks and transportation companies, with few restrictions against possible evils, but manufacturing companies were incorporated on generous terms in the industrial states. "Nearly all the railroads and turnpike roads, and many of the canals," wrote Seaman in 1852, "numerous colleges, universities, lyceums, library associations . . . nearly all the great manufacturing establishments in the United States were established, and carried on by means of corporations."

207. Conditions in the factories. — The growth of industrial cities and of corporations betokens a corresponding development of factory industry. One of the most serious obstacles to the introduction of the factory system had been the lack of labor; this had been mentioned by Hamilton and other writers. As inventions multiplied and factories grew this lack was met by the employment of women and children and later of immigrants. Miss Martineau believed "that there was much silent suffering from poverty before the institution of factories; that they afford a most welcome resource to some thousands of young women, unwilling to give themselves to domestic service, and precluded, by the customs of the country, from rural labor." To attract this form of labor to the factory towns, wholesome living conditions had to be assured, in addition to good wages; these would average about $3.00 a week. The conditions at Lowell, the most famous of these early factory towns, are described as follows by Chevalier, a French traveler, in 1836:

"The cotton manufacture alone employs six thousand persons in Lowell; of this number nearly five thousand are young women from seventeen to twenty-four years of age, the daughters of farmers from the different New England States. . . . The manufacturing companies exercise the most careful supervision over these girls. I have already said that, twelve years ago, Lowell did not exist; when, therefore, the manufactories were set up, it also became necessary to provide lodging for the operatives, and each company has built for this purpose a number

of houses within its own limits, to be used exclusively as boarding houses for them. Here they are under the care of the mistress of the house, who is paid by the company at the rate of one dollar and a quarter a week for each boarder, that sum being stopped out of the weekly wages of the girls. These housekeepers, who are generally widows, are each responsible for the conduct of her boarders, and they are themselves subject to the control and supervision of the company, in the management of their little communities. Each company has its rules and regulations."

The rules thus alluded to required of the operatives industry, temperance, attendance at religious services, neatness, punctuality, and early hours. These were the conditions that obtained in 1840, but by 1860 the farmers' daughters had taken up other callings, their places were filled with Irish and other immigrants, and the neat company houses had given place to factory tenements.

208. Fourierism. — The decade of the forties has been called the "hot air" period of American history — "the golden age of the talk-fest, the lyceum, the brotherhood of man." It was a period of philosophizing about human rights and of social and economic reforms along a great number of lines. Perhaps the most significant and far-reaching of these was Fourierism or Association, as it was more often called. Charles Fourier was a French writer, who before his death in 1837 elaborated a scheme of industrial organization on the basis of associated activity. Social harmony was the keynote of his system: people should group themselves in congenial industrial associations called phalanxes, each of which should contain about 1500 persons. They should live in a great central building, in which labor should be carried on co-operatively; each member should choose his occupation according to inclination, and vary it as soon as it became tiresome; the less attractive kinds of work should be the best paid. According to this scheme labor was to be made both dignified and attractive, and, since everyone in the phalanx would work, he would also secure a larger reward than under the existing competitive régime.

This scheme of social reorganization was presented to the people of the United States by Albert Brisbane in a book published in 1840. A wave of socialism swept over the country. Immediate efforts were made to put these ideals into practice, and phalanxes or industrial groups were established by the dozen. Of these Brook Farm was the most famous; it was organized on a farm near Boston, and numbered among its members such well-known men as Ripley, Channing, Greeley, and Wendell Phillips. All these experiments failed and gradually the Associationists began to pay more attention to particular remedies for particular evils, such as land reform and the organization of labor.

209. Labor organizations. — The cause of labor had been almost submerged in the ambitious attempts at general social amelioration. Philosophical, humanitarian, and political protest took the place of organization and strikes. After the failure of Fourierism had shown that the labor problem was not to be solved by socialism, the workingmen turned to cooperation; but this movement had an even briefer history. Gradually there emerged out of this chaos of experiments and reforms a "pure and simple" trade-union movement which Professor Commons dates from 1853. The efforts of the social reformers were diverted into the anti-slavery contest after 1852, and the workingmen were left to work out their own salvation. A new type of union was established, which steered clear of all programs of social and political reform and confined its activities to improving conditions in the trade. "Its main weapon was the strike; its aim, to establish a minimum wage for the trade and to maintain it by means of a closed shop." Collective agreements were made between unions and employers, which fixed the wages, hours, and other conditions of employment. Labor organization was confined during this period to the formation of small local unions; the first national union, that of the printers, was not established until 1850. By the time of the Civil War it is estimated that only four trades had national organizations.

210. Welfare of labor. — Writing in 1836 Chevalier commented on "the appearance of general ease in the condition of the people of this country." Soon after this, however, wages were generally reduced as a result of the panic of 1837 and the seven-year long depression which followed. The rise in prices which began in 1843 at first had the effect of increasing the cost of living to the working classes, but the general industrial expansion which characterized this period made employment general and ultimately led to improved conditions. Wages rose between 1840 and 1860, and while prices also increased, they did not do so in the same proportion. According to the Aldrich report, if wages and prices in 1860 be stated as 100, relative wages in 1840 were 82.5 and relative prices 98.5, indicating a relative improvement in the economic status of workingmen equivalent to about twenty per cent. At the close of this period another traveler commented favorably upon the absence of pauperism in the United States and the universal appearance of respectability. In addition to increased wages the working classes also secured an amelioration of various political, educational, and legal conditions which had hitherto worked to their disadvantage. Thus imprisonment for debt was gradually abolished after 1823, the public school system was developed, lien laws were passed, the hours of labor were shortened, and other reforms introduced. It was only in the North, however, that these industrial changes were taking place; in the South the blight of slavery had prevented all development in industry and had condemned agriculture to stagnation.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XVI

The labor problem of this period consisted in defining its nature, in determining the rights of labor, and in experiments at realizing some rather visionary ideals. The country still needed workers and the period was one of transition.

1. Describe Robert Owen's reforms in New Lanark, Scotland. [T. Kirkup, Hist. of Socialism, 58; W. L. Sargant, Robert Owen, chap.

20; A. J. Booth, Life of Owen; Robert Dale Owen, Autobiography, chap. 3.]

2. What communistic society was started by Robert Owen in this country? Did it succeed? Why? [J. H. Noyes, Hist. of Amer. Socialisms, chaps. 2–4; Sargant, Robert Owens, chaps. 21–22; Booth, Life of Owen; R. D. Owen, Autobiography, chaps. 8, 9; M. Hilquit, Hist. of Socialism in U. S., 58–64.]

3. What is communism? What is socialism? Is there any difference between these and anarchism? [Encyclopedias.]

4. Describe the social doctrines of the French socialist Fourier. How far were they accepted in America? [A. Brisbane, Social Destiny of Man; Kirkup, Hist of Socialism, 31–40; R. T. Ely, French and German Socialism, chap. 5; W. D. P. Bliss, New Encycl. of Soc. Ref., art. Fourier; Hilquit, Hist. of Socialism in U. S., chap. 3.]

5. Describe Brook Farm as a socialistic experiment. Why did it not succeed? [Noyes, Hist. of Amer. Socialisms, chap. 2; C. Sotheran, 148–153; J. T. Codman, Brook Farm; L. Swift, Brook Farm; Bliss, New Encycl. of Soc. Ref., art. Brook Farm.]

6. What part did Horace Greeley play in social reforms of this period, and how influential was he? [J. R. Commons, Horace Greeley, in Pol. Sci. Quar., vol. XXIV, No. 3; Sotheran, Horace Greeley, 148 153.]

7. Describe the experiences of an immigrant to the United States about 1840–60. [R. Mayo-Smith, Emigration, and Immigration, chap. 3; Commons, Doc. Hist. of Amer. Ind. Society, VII, 81–88.]

8. What revolutionary disturbances were there in Europe about 1848? [G. P. Fisher, Universal Hist., 564–570.]

9. Who was Dorothea Dix and what were her public services? [Encyclopedias.]

10. Give an account of the life of the operatives at a model factory town like Lowell, in the thirties. [H. Martineau, Society in America, II, 53–60; M. Chevalier, Society, Manners, and Politics in the U. S., 135–144; G. S. Callender, Selections from the Econ. Hist. of the U. S., 701–708.]

11. How has the introduction of machinery changed the relations of workman to master? [J. A. Hobson, Evolution of Mod. Cap., 34–43; J. R. Commons, Doc. Hist. of Amer. Ind. Soc., III, 44–48.]

12. Are the opportunities for employees to rise to the rank of employers as great to-day as they were 75 or 100 years ago?

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CHAPTER XVII

PUBLIC LANDS AND AGRICULTURE (1808-1860)

211. Importance of the public lands. — It is almost impossible to exaggerate the influence which the vast western expanse of cheap land has had upon the economic history of the United States. In the later days of the Confederation and the early days of the Republic it bound together by economic interests the States at a time when they otherwise would have drifted apart. Later it afforded an outlet for a growing population, which, instead of becoming denser, has spent its force in taking up new territory. The problem of over-population — that bogy of the early nineteenth century in England — had no meaning in a country where an increase of hands was the greatest need. Unemployment, the standard of living, and the rate of wages were all solved by a recourse to the open land of the West, while the problem of immigration was mainly that of inducing foreigners to come to our shores. This abundance of land has greatly simplified economic and social problems and has acted as a safety-valve in times of depression and panic.

212. Disposal of the land for settlement. — The early policy of the government, of land sales for the sake of revenue, gradually gave way to the second, and what has proved to be the permanent, policy respecting the public lands. This is the system of land grants for actual settlement in small lots suitable for cultivation. By the act of April, 1820, sale for credit was abandoned and the price reduced to $1.25 an acre while the minimum tract to be sold to one individual was reduced to eighty acres. The earlier system had been denounced by western men, who objected to the use of the public

domain as a source of government revenue, to the high price of the land, and to the credit system. Representatives of the eastern states, on the other hand, had resisted any change in these provisions, as they feared the reduction of land values in the East because of the competition of the abundant lands in the West, and claimed that a reduction of price would drain off the population from the seaboard and cause a rise of wages in the manufacturing states. Each view was seen to be exaggerated.

For the next ten years the sales of public land were very steady, averaging about 1,000,000 acres yearly. The introduc-

HORSE RAKE, 1818

"After the crop is cut, the swath is collected by the hand and tied into sheaves; a small quantity of stalks still remain scattered over the surface; these are commonly collected by the hand rake. To facilitate the latter part of the process, a horse rake has been recently invented." — Flint's *Letters from America,* 1818.

tion of the steamboat upon western waters, the extension of cotton culture through the Southwest, the greater demand for agricultural produce due to the growth in population, all led to a steady demand for land for actual cultivation and settlement. The possibility of using the public lands as an agency of social reform gradually dawned upon the workingmen, and they began to demand, in their papers and conventions, that speculation should stop and the public domain be opened to the people. Land reform became an important issue in the platforms of organized labor. During the years from 1825 to 1832 many schemes of a most questionable character were introduced in Congress for disposing of the lands by sale or

UNITED STATES
ACQUISITION OF TERRITORY
1783-1853
SCALE OF MILES
0 100 200 300 400 500
Longitude West 100 from Greenwich
110 90
ORIGINAL TERRITORY 1783
LOUISIANA PURCHASE 1803
TEXAS 1845
MEXICAN CESSION 1848
GADSDEN PURCHASE 1853
OREGON TERRITORY
Occupation and Treaty with Great Britain 1846
FLORIDA 1819
BAHAMA IS.
BRITISH POSSESSIONS
GULF OF MEXICO
ATLANTIC OCEAN
PACIFIC OCEAN
L. Michigan
L. Superior
L. of the Woods
St. John R.
St. Lawrence R.
Ottawa R.
Missouri R.
Arkansas R.
Red R.
Sabine R.
Rio Grande
Colorado R.
Gila R.
Columbia R.
Snake R.
Yellowstone R.
St. Mary's R.
L. Champlain
L. Ontario
L. Erie
L. Huron
L. Winnipeg
L. Winnipegosis
L. Manitoba
L. Athabasca
L. Great Slave
L. Great Bear
L. Nipigon
L. Abitibi
L. Mistassini
L. Nipissing
L. St. Clair
L. Pontchartrain
L. Michigan
L. Superior
L. of the Woods
L. Winnipeg
L. Winnipegosis
L. Manitoba
L. Athabasca
L. Great Slave
L. Great Bear
L. Nipigon
L. Abitibi
L. Mistassini
L. Nipissing
L. St. Clair
L. Pontchartrain
L. Champlain
L. Ontario
L. Erie
L. Huron

gift, for reducing the price, or for handing over the public lands to the States for them to dispose of.

213. Speculation in western lands. — The next few years saw an outburst of speculative activity which has scarcely been equaled since in the United States. This was largely owing to the great increase in land values, the inflated condition of the currency, and the loose banking methods then prevailing. Western lands had been steadily appreciating in value for some years, and as credit and money became easier under the speculative fever of the time, they seemed a favorable object of investment to those who were seeking an easy and rapid increase of wealth. Paper villages were laid out, lands were sold at greatly enhanced prices, often fifty times their original cost, and speculation was fanned to a fever heat. The sales of public lands swelled rapidly, amounting to 3,856,278 acres for the year 1833, and to the enormous figure of 20,074,871 acres for 1836. The sales of 1834–36, 40,000,000 acres, exceeded all that had been sold before. Nor was the speculation confined to western lands; owing to the extension of cotton culture due to the increasing demand for, and the consequent advance in the price of, cotton — from a maximum of 13½ cents a pound in 1833 to 20 cents in 1835 — the value of southern plantations and city real estate rose enormously. The coal lands of Pennsylvania and the manufacturing cities of the East felt a similar impetus. Thus the assessed value of real estate in New York city rose from $143,732,425 in 1835 to $223,742,303 in 1836, and in Mobile from $4,000,000 in 1834 to $27,000,000 in 1837. After the panic of 1837 these values fell even more rapidly.

214. Pre-emption of the public lands. — The rapid peopling of the West and the settlement of the public domain made necessary a better method of disposing of the land to actual settlers than had prevailed. Under the previous system of sales many of the most desirable tracts were bought and held by speculators or for investment. As the incoming population pressed in, it tended in its haste to pass beyond the sur-

veyed lands and to settle in the wilds before they had been opened to settlement. The public domain was theoretically not open to settlement until it had been surveyed and was offered for sale through land offices; as a matter of fact the pioneers did not wait for government surveys, but "squatted" on the land. For the benefit of those already upon the soil and of future residents the pre-emption system was gradually developed. "Pre-emption is a premium in favor of, and

HARVESTING WITH CRADLES

In most parts of America the crops were mowed at this time by the cradle scythe. This was a frame of wood with a row of long curved ribs projecting above and parallel to a broad scythe-blade, for cutting grains and laying them in a straight swath. The cradle acted as a gathering rake and deposited the grain in an even pile with every swing of the scythe. It was invented in 1803 and constituted at the time a greater improvement over existing methods than did the reaper thirty years later over the cradle.

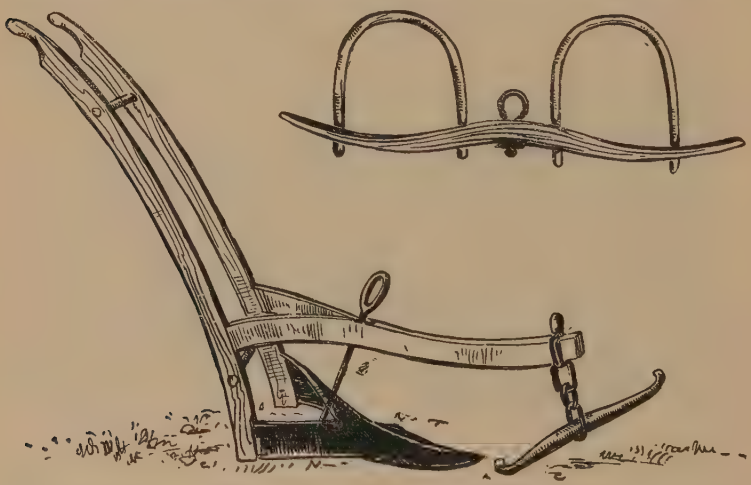
condition for, making permanent settlement and a home." "The essential conditions of pre-emption are actual entry upon, residence in a dwelling, and improvement and cultivation of a tract of land." It was not a free grant of land, but simply a privilege to the settler of purchasing at the

established price the land upon which he had settled, without competition of any sort. The first general pre-emption act was passed in 1830 as a temporary measure and was continued each year until superseded by the permanent law of 1841. The policy of disposing of the public lands primarily for homes had now been definitely adopted. Except during the panic of 1857, the sales during this period were steady and kept pace with the settling of the West, averaging about three and one half million acres a year.

215. Grants of land. — In addition to its use for purposes of settlement, the public domain of the United States has also been employed to encourage internal improvements, for educational purposes, and in direct gifts to individuals and States. By the ordinance of 1785 it was provided that one thirty-sixth of the public lands should be reserved for the support of the common schools, and since 1848 one eighteenth has been so reserved in all States entering the Union after that date. Beginning with 1841, the lands were recklessly alienated by Congress; during the period 1841–60, 65,701,312 acres were granted to individuals, 105,131,877 acres were granted to States for purposes other than internal improvements, of which the largest single gift was that in 1849 of all the "swamp and overflowed lands" within the limits of any State; and 29,820,337 acres were granted to States and corporations for internal improvements. Of a total of 269,406,415 acres disposed of during the period 1840 to 1860, only 68,752,889 acres were sold, the rest being generously — or improvidently — given away by Congress.

216. Extension of farm area. — The settlement of the fertile country about the Great Lakes proceeded rapidly after the construction of the Erie and other canals had provided an outlet to the Atlantic ports for western produce. Between 1820 and 1840 the population of Ohio increased from 581,295 to 1,519,467; that of Indiana from 147,178 to 685,866; of Illinois, from 55,211 to 476,183; and of Michigan, from 8896 to 212,267. This growth in the population denotes a cor-

responding extension in the cultivated farm area, though statistics showing this were not yet gathered for the census. While some of those who joined in the westward movement took up land for speculative purposes, the majority had the distinct purpose of becoming farmers. During this period the tide of settlement pushed out beyond the forest belt, which clothed the whole eastern section as far as Ohio and which made the task of the settler in that region so laborious, and reached the treeless prairies of the West. The cost of preparing the soil for cultivation here was certainly less than



PLOW AND NECK YOKE, 1832

"The plow is different in its construction from that used in Germany, and the oxen are attached to it by a very peculiar yoke, which consists of a long, thick, crooked piece of wood, which is laid horizontally over the necks of two oxen, with two bows underneath, through which the heads of the animals are put." *Travels in the Interior of North America,* by Maximilian, Prince of Wied, 1832.

half what it had been in those sections where the forest had first to be cleared away. "Here," wrote an English traveler, Stirling, "the pioneer is not the backwoodsman with his axe, but the 'prairie-breaker' with his team and plough." Yet there were certain obstacles to the rapid settlement of this

open land: the scarcity of wood made it difficult to build houses or to secure fuel, while drinking water could be obtained only by digging wells from twenty to forty feet, and was not very good at that. The lack of navigable waterways, too, cut off the settlers on the prairie from access to markets, at least until the railway opened up this section. As a result the early pioneer was apt to lead an isolated and dreary existence, which was aggravated by the unhealthfulness of the region.

The population of the southern slave States also increased from 1,200,484 in 1820 to 2,659,085 in 1840, although most of the increase took place in the new Southwest rather than in the old South. The cotton and sugar plantations of the South showed an increase in size after 1840; here alone, with the exception of California, was to be found any considerable number of farms of over 1000 acres. The total values produced on the farms at each decennial date was estimated at $580,000,000 in 1840, $800,000,000 in 1850, and $1,250,000,000 in 1860. In spite of the rapid progress in manufactures and commerce, the country still remained predominantly agricultural, over 40 per cent. of the population being dependent upon agriculture.

217. Improvements in farm implements. — As late as 1830 practically every part of the work of the farm, says Professor Carver, except plowing, harrowing, and drawing loads, was done by hand, that is, with tools that were directed and driven by human muscles. "Small grain was sown broadcast, reaped with a cradle (which was a relatively new invention), and threshed with a flail, or trodden out by horses and oxen. Hay was mown with a scythe, and raked and pitched by hand. Corn was planted and covered by hand, and cultivated mainly with a hoe." Using a cradle and a hand-rake a man could cut and rake about two acres a day, working under much greater fatigue than a modern farmer endures.

By 1860 the farming industry had been revolutionized in respect of practically every one of these processes by the in-

vention and introduction of farm machinery whose motive power was non-human. No period of equal length in the history of agriculture has witnessed such revolutionary changes.

Of far-reaching influence on the extension of cereal production throughout the flat prairie regions of the central West was the invention of various mechanical devices for plowing, cultivating, mowing, reaping, and threshing the crops. The cast-iron plow was in general use by 1825. During the next decade the use of threshing machines spread with great rapidity, and by 1840 comparatively little grain was threshed in any other way. Improvements continued to be invented: up to 1860 the number of patents — 354 — granted for threshing machines was larger than had been issued for any other instrument except the plow and water-wheel, and perhaps grain harvesters and corn-planters. At first the machine merely threshed, but about 1850 separators were added, which separated the grain from the chaff and straw. By 1860 steam-threshers had been introduced, but horse power was still generally used. The first patent for a mowing machine was granted to William Manning, of New Jersey, in 1831, and for a reaping machine to Obed Hussey, of Baltimore, in 1833, which cut grain as fast as eight persons could bind it. In 1834 a patent was issued to Cyrus H. McCormick for an improved reaping machine for cutting grains of all kinds. The prototype of the revolving hay-rake was invented in 1824 and perfected about 1856. Only limited success attended the early introduction of these machines, and it was not until after 1840 that they exerted their transforming influence on western agriculture.

The common use of the reaper dates from about 1845, and the mower a decade later. It was given a great impetus by the success of American machines at the World's Fair in London in 1851 and at an exhibition near Paris four years later. "The triumph of the American reapers," said the official report at London, "worked a new era in agriculture." At the Paris exhibition a trial of mowing, reaping, and threshing machines was made, and of the results a correspondent of

the *New York Tribune* wrote: "Six men were set to threshing with flails at the same moment that the different machines commenced operations, and the following were the results of half an hour's work:

"Six threshers with flails	60 liters of wheat
Belgium thresher	150 liters of wheat
French thresher	250 liters of wheat
English thresher	410 liters of wheat
American thresher	740 liters of wheat"

In the trial of reapers the following was the result in a field of oats: an Algerian machine cut an acre in 72 minutes; an English machine in 66 minutes; and an American in 22 minutes.

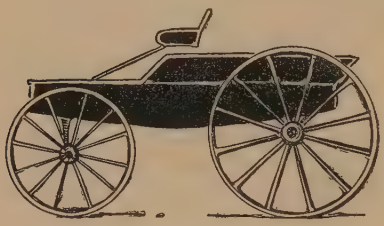
218. Other improvements. — The application of machinery to the work of harvesting marked an epoch in American agriculture; there was now no practical limit to production through inability to gather the crop. But the use of machines in harvesting was supplemented, though in a lesser degree, by their application to the cultivation and tillage of the crop, particularly of Indian corn. A variety of cultivators, grubbers, horse-hoes, seed-drills, and similar implements enabled the farmer to substitute animal power for hand culture. Of especial importance were the corn-planters and the two-horse cultivator, which came into use during this period. In a new country like the United States, where labor was still scarce and high, labor-saving machines were indispensable. The chief characteristics of the American machines, were, as they still are, lightness, simplicity, and cheapness, in all of

IMPROVEMENT OF THE WAGON. I

The plain springless box wagon was introduced in 1810.

which qualities they far excelled those of England and Europe. By 1860 the total value of agricultural implements manufactured in the United States was $17,802,514.

During this period, too, commercial fertilizers were introduced into the United States, and the application of chemistry to agriculture, first reduced to a science by Liebig, was put in practice, though as yet to a very limited extent.



IMPROVEMENT OF THE WAGON. II

In 1820 the seat was put upon a spring.

But great as was the progress in cultivating, harvesting, and cleaning the grain, it was still greater in grain transportation. The most remarkable progress was made during this period by the western States (Ohio, Indiana, Illinois, Michigan, and Wisconsin). In these five States between 1850 and 1860 the number of miles of railroad grew from 1275 to 9616; the production of corn, oats, and cattle increased over 50 per cent., and of wheat and potatoes 100 per cent. At the same time the cash value of the farms in these States almost t r e b l e d. The rivers and canals were quite inadequate to transport this increased production, which was made possible only by the rapid extension of railroads.

IMPROVEMENT OF THE WAGON. III

The thorough-brace was placed under the body of the wagon in 1825.

219. Benefits of farm machinery. — The saving effected by the use of these improved implements was estimated in the census of 1860 as equal to more than one half the former cost of working. " By the improved plow, labor equivalent to that

of one horse in three is saved. By means of drills two bushels of seed will go as far as three bushels scattered broadcast, while the yield is increased six to eight bushels per acre; the plants come up in rows and may be tended by horse-hoes. . . . The reaping machine is a saving of more than one third the labor when it cuts and rakes. . . . The threshing machine is a saving of two thirds on the old hand-flail mode. . . . The saving in the labor of handling hay in the field and barn by means of horse-rakes and horse-hayforks is equal to one half." But the real gain to agriculture by the use of these machines cannot be measured merely by noting the increased area that can be cultivated by a given labor force, or the saving in labor cost. It consists rather in the saving of time, which permits a large crop to be harvested at the moment of maturity, without the loss by delay or exposure, that is, if grain is not harvested in about ten days it is lost, falls to the ground or is spoiled. The whole labor force of the United States in 1860 would probably have been insufficient to have harvested in season the crops of that year by the methods of a generation previous.

IMPROVEMENT OF THE WAGON. IV

In 1825 the elliptical spring was introduced over the two axles.

The expansion that was taking place in agriculture during this period can best be seen in the following table. During the twenty-year period, 1840–1860, there was a round doubling in the case of most of the products, but cotton somewhat more than trebled, while oats and potatoes showed only about a fifty per cent growth. On the whole the expansion of agricultural production was more rapid than the growth either of the population or the means of transportation; it measured fairly well the development of wealth.

PRINCIPAL AGRICULTURAL PRODUCTS, 1840–1860

Product (In Millions)	1840	1850	1860
Improved farm land, acres	....	113.0	163.1
Corn, bushels	377.5	592.0	838.8
Wheat, bushels	84.8	100.4	173.1
Oats, bushels	123.0	146.5	172.6
Potatoes, bushels	104.2	104.0	153.2
Hay, tons	10.2	13.8	19.0
Butter, lbs.	...	313.3	459.6
Wool, lbs.	35.8	52.5	60.2
Cotton, lbs	600.0	960.0	2120.0
Tobacco, lbs.	219.1	199.7	434.2
Rice, lbs.	80.8	215.3	187.1

220. Cereal production. — With the extension of the cultivated area the production of the cereals increased enormously; most of it, however, found a market in the growing Southwest, and the lake grain trade did not begin to expand until the end of this period. As corn could not pay the costs of transportation very well, it was converted into whisky or hogs, and sold in the form of salt pork, hams, bacon, etc. Some cattle were fattened on corn and driven over the mountains to the Atlantic seaboard. With the opening of the Erie Canal in 1825, an outlet was afforded to the grain of the West. Wheat began to displace corn as the chief money crop of the northern lake region, and became the breadstuff of the northern population. The center of wheat production was still in western New York, however, and its export from the West did not become important until after the building of railroads. Corn and live stock remained the principal products of the Ohio valley, and were shipped down the Mississippi to the cotton plantations of the South. In 1840, when this crop first appeared in the census, the production of Indian corn amounted to 377,531,875 bushels, and of wheat to 84,823,272 bushels.

221 Changes in farming. — One of the effects of all these improvements in harvesting and marketing the crops was a greater specialization in farming. There was a general change from the self-sufficing system of agriculture, where a farmer produces everything that he needs, to the commercial system, where he specializes on a money crop and buys most of his supplies with the proceeds. The transfer of grain production

First McCormick Reaper, 1831

The first reaper, built by Cyrus H. McCormick, of Virginia, was made at a blacksmith's shop in the Shenandoah valley. These reapers enabled one man with a team of horses to cut as much grain as four men with cradle scythes. McCormick did not take out his first patent until 1834.

to the western States, brought about by improved methods of transportation, had begun the change in New England agriculture which in time completely transformed it. Market gardening increased greatly in New England and the middle Atlantic States, while a little farther west orchard products received greater attention. The two together increased in

value from $3,000,000 in 1840 to $35,800,000 in 1860. On the western farms there was greater specialization in cereal production, which permitted the use of more expensive machinery and more capital.

222. The grain trade of the United States. — Until the building of railroads in the western States the grain trade developed very slowly. With the completion of the system of canals and later of railroads, the grain resources of the lake basin were opened up and the trade greatly stimulated. As late as 1835 Ohio was the only State in the West exporting grain direct to the Atlantic coast. The first shipments of grain from Chicago consisted of 78 bushels of wheat in 1838, while the first shipment from Wisconsin was not made until three years later. By 1860 the total shipments of grain and flour eastward from ports on Lake Michigan alone amounted to 43,211,448 bushels. During the period 1840–60 the production of grain in the northwestern States was estimated to have increased from 218,463,583 to 642,120,366 bushels. Of this, however, only a very small portion was exported; on an average not over 10 per cent. The following census table shows the increase in value of the grain exports:

EXPORTS OF GRAIN, 1823–1863

Years	Aggregate Value of Exports of Grain	Percentage of Increase
1823–1833	$67,842,211	.....
1833–1843	73,303,440	8.0
1843–1853	198,594,871	170.9
1853–1863	512,380,514	158.0

Great as this increase was in the last two decades, especially after the repeal of the British corn laws in 1846, the produce of a single State like Illinois far exceeded the total exports. The real development of the export grain trade belongs to the next period. Practically all of the exports were now made via

the Atlantic ports, the New Orleans grain trade having entirely disappeared; in 1860 only 2189 bushels of wheat were shipped from that port. On the other hand, the southern exports of cotton — which constituted about one half of our total exports in value — and of sugar, tobacco, and rice had grown prodigiously.

223. **Home consumption of products.** — It is evident that when only 4 per cent. of the cereal production of the country, or 40,000,000 bushels of grain out of a total crop of 1,000,000,000 bushels, is exported, the home market is infinitely more important than the foreign. And yet the greatest interest has always properly enough attached to the export trade, for the price at home of wheat, cotton, and other agricultural exports has been determined by the price ruling in Europe, and more particularly in England. The vast growth of manufactures in the eastern States created a demand in that section for western produce; in 1863 Governor Andrew of Massachusetts estimated that the consumption of western agricultural products in New England amounted to $50,000,000 yearly.

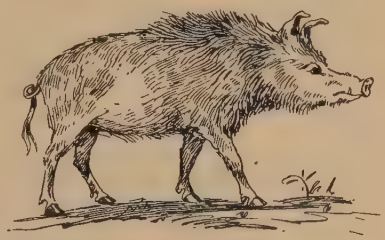
On the other hand, the devotion in the southern States to the cultivation of a few staple crops — cotton, tobacco, sugar, and rice — created profitable home markets for the grain of the Northwest. Much of the corn, too, was not consumed as such, but was fed to stock, especially swine, which were then more easily marketed than the original product. The increase in the tonnage of the lakes, from 76,000 tons in 1845 to 391,220 in 1860, and of railroad mileage, from 2818 miles in 1840 to 30,635 in 1860, sufficiently indicates the growth of the internal trade of the country.

In explaining the progress and prosperity of agriculture during this period due emphasis must be placed upon the widening markets as well as upon the improvements in production. Not only was the domestic market expanding, but there was a growing foreign demand for our products, due to famine and wars abroad, the repeal of the English corn laws, and the growth of industry in that country and in Europe.

224. Cotton growing. — One of the most important events in the agricultural history of this period was the rise of cotton to first place among the products of the South. It passed tobacco in 1803 and has ever since led all other southern agricultural staples. In other chapters is discussed the relation of cotton culture to slavery; it is sufficient at this place to mention that it was carried on largely by negro slaves, and that by this very fact agriculture in the South was reduced to a condition of stagnation. The wasteful system of land killing was practised even more extensively in the cultivation of cotton than in the case of the cereals; one piece of land was cultivated continuously until it was exhausted, when it was abandoned and a new tract cleared. As the slaves could be trusted only with heavy and crude tools, the introduction of improved agricultural machinery in southern agriculture was rendered impossible. The use of slaves in cotton culture had also the effect of concentrating the industry on large plantations rather than of scattering it over small farms. In all these respects therefore — the crop itself, the kind of labor, the character of the tools, and the size of the farm holding — there was a great difference between agriculture in the South and that in the North. Those sections of the South which were not able to produce cotton were devoted to the raising of other staples which found a ready market in the other sections of the country. Tobacco was cultivated in the northern tier of slave States, and by much the same methods that had prevailed during the colonial period. In Virginia and Kentucky there also grew up a considerable stock-raising industry, especially of horses and mules, for which there was a strong demand on the cotton plantations.

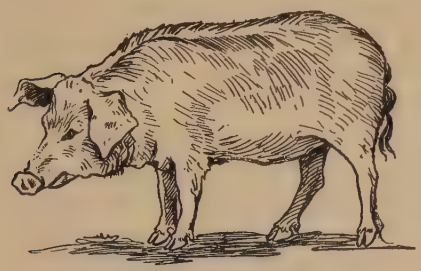
225. Live stock. — The cattle industry of the United States has always flourished on the frontier, and during this period made steady progress in the West. The first fat cattle that ever crossed the Alleghanies were driven from Ohio to Baltimore in the spring of 1805. This proved the beginning of a

profitable trade, and until the railroad began to transport them directly to the eastern market, western cattle were fattened on corn in Ohio during the winter months and then driven eastward in the spring. About 1832–36 a general interest in the improvement of live stock began to be manifested by farmers, largely as a result of the exhibitions at county fairs which had begun about 1810, but were now revived and improved. Durhams, long-horns, Herefords, Devons, and other improved breeds were imported and crossed with the common cattle of the United States, resulting in a great improvement in size, early maturity, and quality of beef.



IMPROVEMENT OF THE HOG. I

The southern pine-woods hog, which ranged wild in the woods at all seasons, developed fleetness of foot, coarse, large bones, and a thick, hard coat.

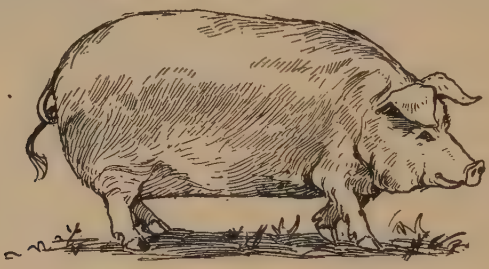


IMPROVEMENT OF THE HOG. II

The western beech-nut hog shows an improvement, but was coarse, long-legged, large-boned, slab-sided, and flab-eared.

The first importation of merino sheep had been made in 1793, but it was not until the embargo forced the people to produce their own clothing that general attention was directed to the raising of fine-wool sheep. Societies were formed in Kentucky and Ohio to improve the breeds by the importation of pure merinos, southdowns and other blooded stock, and great improvements were effected in breeding both for mutton and for wool. These States, with western New York, remained the seat of the industry until after the Civil War. Large numbers of swine were also raised, especially

in Ohio, Kentucky, and Tennessee. Abundant and cheap food existed for them in the mast of the oak and beech forests, and in the corn which became their staple food after the clearing of the forests. Until after the building of improved transportation facilities, many of the hogs of the West were driven



IMPROVEMENT OF THE HOG. III

The improved Suffolk shows the desirable qualities of a hog — small bones, short legs, round barrel, thin coat, ready fattening qualities, and sluggishness.

to Baltimore and Philadelphia to be slaughtered there for the domestic and foreign provision trade; later Cincinnati became the center of the meat-packing industry and remained so until displaced, in 1861, by Chicago.

226. Other Changes. — A notable event was the importation into Ohio of the Percheron stallion Louis Napoleon, from which dates a great improvement in the draft horse. Before this the most prized animals as beasts of burden, in addition to mules, were the Conestoga horses, which were early used to draw the Philadelphia-Pittsburgh stage coach. Some attention had been given to breeding trotting horses and several importations made; a great sensation had been occasioned in 1816 when "Yankey" trotted a mile under the saddle at the Harlem course in New York City in 2.59, but religious sentiment in the North was against speed tests. Trotting did not become a popular pastime until after the introduction of macadam pavements. Up to 1840 the buggy was practically unknown, the common mode of travel being on horseback.

An interesting change was taking place at this time in the kind of animal power used on the farm. As long as crude and heavy implements were used, such as the old bull-plow, the cart, and the clumsy wooden harrow, oxen were generally used, as they were powerful and cheap. With the introduction of farm machinery, however, these slow and stupid animals were displaced by horses and mules, which were better adapted to this purpose.

Between 1840 and 1860 the number of sheep remained almost at a standstill, while the increase in neat cattle and swine did not keep pace with the growth of the population. All of these animals were raised chiefly for slaughtering. While the pork-packing industry did not assume large proportions until the decade of the Civil War, in 1860 over 400,000 hogs were slaughtered annually at Cincinnati, and 230,000 at Chicago; the following year Chicago took first place. An improvement was introduced into the dairying business during this period, which in time worked a revolution in that branch of farm work. Up to 1850 all the butter and cheese was made on the farm, but in the next year the associated system of dairying known as the American system was inaugurated by the invention of the cheese-factory, of which twenty-one were built by 1861. The development of dairying led to attempts to improve the breeds of dairy cattle, and a large number of pure-bred Jerseys were imported and also some Ayrshires.

The following table shows the increase in live stock:

LIVE STOCK IN THE UNITED STATES, 1840–1860

Live stock (in millions)	1840	1850	1860
Horses and mules	4.3	4.8	7.3
Neat cattle	14.9	18.2	25.6
Sheep	19.3	21.7	22.4
Swine	26.3	30.3	33.5

227. Condition of the farmer. — The economic position of the American farmer during this period was one of increasing prosperity, interrupted only temporarily by banking troubles, by panics, or by crop failures. The building of internal improvements was furnishing sections of the country with better means of transportation and affording access to markets. The spread of cotton culture brought in large profits to southern planters and provided an outlet for northern produce, while the growth of manufactures contributed also to the development of a home market. The life of the settlers in the new West was not very different from that of the early colonists in the eastern States. A rude abundance of the necessaries of life was everywhere to be found, and a generous hospitality was remarked by travelers as a characteristic of the people. Breadstuffs — wheat and corn — were plentiful and cheap. Game was abundant, and cattle and hogs multiplied rapidly and foraged for themselves in the woods, so that animal food was a usual article of diet. The settler's garden furnished him all the vegetables necessary for his table, with little attention on his part; there was usually a superfluity of potatoes, squashes, melons, and other common vegetables. Tomatoes, curiously enough, were grown as ornamental shrubs under the name of "love apples," but were not eaten until about 1830, as they were generally supposed to be poisonous. Apples, peaches, pears, and other fruits were fairly plentiful, but were of poor quality.[1] Salt and iron alone were scarce, and, in the prairie region, wood; elsewhere it was

[1] Mrs. Trollope, in her *Domestic Manners of the Americans,* writes as follows of her experience in Ohio: "All the fruit I saw exposed for sale in Cincinnati was most miserable. I passed two summers there, but never tasted a peach worth eating. Of apricots and nectarines I saw none; strawberries very small, raspberries much worse; gooseberries very few and quite uneatable; currants about half the size of ours, and about double the price; grapes too sour for tarts; apples abundant, but very indifferent; none that would be thought good enough for an English table; pears, cherries, and plums, most miserably bad."

abundant. Clothing was of homespun, and in the outlying districts often of leather and skins. Where the population was dispersed, the life of the settler was often lonely and marred by the prevalent malaria. But these were temporary hardships, to be endured for the sake of the certain increase in the value of the land and the satisfaction of being one's own master.

228. Character of agriculture. — American farming was still characterized by the wasteful and exhausting methods of cropping without fertilizing that prevailed in colonial times. This was caused partly by the fertility of the soil and the abundance of cheap land, and partly by the unsettled nature of farming and the unwillingness to sink capital in improvements. "It seldom happens," wrote Tocqueville in 1840, "that an American farmer settles for good upon the land which he occupies; especially in districts of the far West he brings land into tillage in order to sell it again and not to farm it." The same thing was remarked by another traveler: [1] "There is scarcely any such thing in New England and New York as local attachment . . . Speaking generally, every farm, from Eastport in Maine to Buffalo on Lake Erie, is for sale. The owner has already fixed a price in his mind for which he would be willing and even hopes to sell, believing that with the same money he could do better for himself and his family by going still farther West. Thus, to lay out money in improvements is actually to bury what he does not hope to be able to get out of his farm again, when the opportunity for selling presents itself." So long as land was held only as a speculation, in order to sell again, farming could not be brought to a very high state of development. The American farmer of this period has been likened to a miner, who extracts wealth from the soil, but does not restore it. Such methods were directly promoted by the prevailing practice in regard to land holding and sale, which made the farmer, in part at least, a speculator as well as an agriculturist. American agri-

[1] J. F. W. Johnston, Notes on North America, p. 163.

culture has suffered from this fact down to the present time. For the farmer of that time, however, this was the most economical method, since capital and labor were scarce while land was plentiful and could therefore be used wastefully.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XVII

The land problem, in its governmental aspect, was how to get the public lands into the hands of settlers; in its social aspect, it was how to utilize the land so as to produce the largest returns. The response of the American farmer to this problem was prompt and may be read in the agricultural development of this period.

1. What were the methods and implements in use before the introduction of the cast-iron plow, the reaper, mower, thresher, and other improved implements mentioned? [Eighty Years Progress; Eighth Census (1860), vol. Agric., Intro., xi-xxiv; Twelfth Census (1900), X, 352–364; G. Holmes, Progress of Agric. in U. S.]

2. Was there any connection between the different tariffs and the sheep-raising industry? Was there a duty on cattle? Why on one and not on the other? [F. W. Taussig, Tar. Hist., 239, 257, 292, 330; W. D. Lewis, Our Sheep and the Tariff; W. M. Grosvenor, Does Protection Protect; C. W. Wright, Wool-growing Industry and the Tariff.]

3. Describe the early introduction of improved merino sheep into this country. Is sheep-raising successful in the United States to-day? [Eighth Census (1860), vol. Manuf., 26–32; Coman, 182.]

4. Would you call a period of advancing prices and speculative activity, such as existed in 1834–7, "good times"? [D. R. Dewey, 224–231.]

5. What proportion of your classmates to-day live in the same State or country in which their parents were born? What does this seem to indicate as to local attachment? Has it any effect on good government, in our cities or elsewhere?

6. What were some of the schemes mentioned in sect. 212 for disposing of the public lands?

7. Was the wish to own a home or the hope of a rise in the value of the land the main reason, in your opinion, for the taking up of the western lands?

8. In what States were the land sales greatest? What was the growth of population during the decade 1830–40 in these States? Does this show anything as to whether the lands were bought for actual settlement?

9. What effect did the sale of land to speculators have upon its actual settlement? [Kettel, in Hunt's Merch. Mag., XI, 112.]

10. Do the governments of other countries own land? Would it have been better for the United States to have retained the ownership of most or all of the land, instead of giving it away? [H. C. Adams, Sci. of Fin., 247–254; C. F. Bastable, Pub. Fin., 169–190; A. Marshall, Princ. of Econ., 500, n. 2; C. J. Bullock, Introduction, 16; A. B. Hart, in Quart. Journ. Econ., I, 169.]

11. Are the statements made in sect. 228 true to-day to your knowledge?

12. Trace the changes in the agricultural products of some typical State, as Massachusetts, New York, Ohio, Iowa. [Census vols. on Agric., 1850–1900.]

13. Trace the westward movement of agriculture in the United States since 1850. [Twelfth Census (1900), vol. Agric., part 1, 37.]

14. Is the price of wheat and cotton in the United States fixed by the price offered in London or New York? Why? [Bullock, Introduction, 185; A. Marshall, Principles, 403.]

15. What objections can you think of to the introduction of improved farm machinery? [M. B. Bateman, in Ohio Agric. Rep., 1869; H. W. Quaintance, 40; Rep. Ind. Com., X, 132, 256.]

16. Does the introduction of farm machinery increase or reduce the number of farm laborers? [Quaintance, 29–45; E. W. Bryn, Progress of Invention, chap. 16.]

17. Why was Cincinnati the seat of the pork-packing industry prior to the Civil War? Why does Chicago now hold first place? [C. C. Adams, Com. Geogr., 80.]

18. What was the attitude of foreign nations to the reception of our wheat during this period?

19. The per capita consumption of wheat in the United States was seven bushels in 1860. What is it to-day? Has the amount raised kept pace with the increase in population? What do the figures show?

20. What was the quality of the fruit in the United States about 1840? How has it been improved? [Mrs. F. M. Trollope, Domestic Manners of the Americans, 88; L. H. Bailey, Plant Breeding, 4th ed., 227–314.]

21. Did the improvements in transportation during this period have any effect upon specialization in farming?

22. Did the Pre-emption Act benefit land speculators or settlers?

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CHAPTER XVIII

SLAVERY AND THE SOUTH

229. The development of the South. — While the country as a whole had made marvelous industrial progress during this period, the benefits were confined largely to the North and West. The great advances in manufactures, in agricultural improvements, and in commerce had scarcely affected the South. The reason for this industrial backwardness was the specialization in cotton growing, which was bound up with the institution of slavery, and to a fuller discussion of slavery as a system of labor we must now turn. Two thirds of the population and a still greater proportion of the wealth of the country were in the northern States in 1860. Of the $3,736,000,000 of wealth produced in 1859, over $2,818,000,000 came from northern farms and factories. By far the greater part of the manufacturing and mining industries of the country were situated there. In fact, the South had lagged far behind the North in the industrial advance of the previous half century. A southern writer, Trenholm, has the following to say on this point: "The whirl and rush of this progress encompassed the South on every side. . . . Yet alone in all the world she stood unmoved by it; in government, in society, in employment, in labor, the States of the South, in 1860, were substantially what they had been in 1810, when the abolition of the slave-trade had impressed upon their development the last modification of form of which it seemed susceptible."

230. The growth of slavery. — With the increased demand for cotton, the cotton belt had gradually spread westward until in 1860 it stretched from the Atlantic across the southern

States and over the greater part of Texas. At the same time the production of cotton had almost trebled between 1840 and 1860. Hand in hand with this extension of cotton territory and of production had proceeded the growth in the number of slaves, from 677,897 in 1790 to 2,009,043 in 1830, and 3,953,760 in 1860. How dependent the extension of slavery was upon the growth of cotton can easily be seen by noting the concentration of slaves in the cotton-growing States. In 1840 over two thirds of the slave population were in the ten cotton-growing States, while in 1860 nearly three fourths were to be found there. Of this large number a considerable proportion had been added by an illicit slave-trade with Africa, but the greater part was the natural increase of the slave population. Slaves were exported mainly from the border States of Virginia, Maryland, and Kentucky, where there was diminishing opportunity for negro employment, resulting in a vigorous slave-trade with the cotton-growing States. Olmstead calculates that the average importation of slaves into seven of the southern States during the decade 1850–1860 was about 25,000 annually.

COTTON PICKING

Cotton picking began about the first of August in the eastern States and continued until the middle of December in the West. The field had to be gone over again and again, as only the ripened blooms were picked each time. This was a tedious but not laborious task and employed women and children as well as men. An average hand would pick about 200 lbs. a day, while some skilled pickers reached as high as 400 or 500 lbs. a day.

231. Nature of slavery. — Slavery is essentially a system of forced labor; the worker does not reap the reward of his toil and is consequently less interested in its results. Under a system of free labor the full returns of his effort belong to the laborer; the motive to exertion is self-interest instead of fear, and consequently the diligence and application are many times greater. On the other hand, the whole fruit of the slave's toil belonged to his master, who had to make in return only a small outlay for maintenance. How far the small running expenses offset the meager returns from slave labor was the economic problem involved in the system of slavery. Was it more remunerative to the slave-owning population than a system of free hired labor, quite irrespective of the rights or interests of the slaves? Southern writers before the Civil War insisted that the prosperity of the South was bound up in the "peculiar institution," and that to destroy slavery was to ruin southern industry; as a matter of fact, nearly nine tenths of the cotton was raised by slave labor. It may fairly be admitted that by 1850 the question of free versus slave labor was no longer a debatable one. The existence of slavery and the plantation system had driven out the supply of white yeomen labor which might have done the work of raising cotton, and the plantation owners were unable to make use of any other than slave labor. When the gin was invented cotton was generally raised by white farmers. As its culture spread out to the richer lands of Alabama and Mississippi the large plantation with slave labor competed successfully with the small farm and finally supplanted it. The independent white farmer then retreated to the poorer lands, where he grew some cotton, raised live stock, or engaged in mixed farming. If there had been no slaves white labor would have developed the cotton industry throughout the South, though of course more slowly.

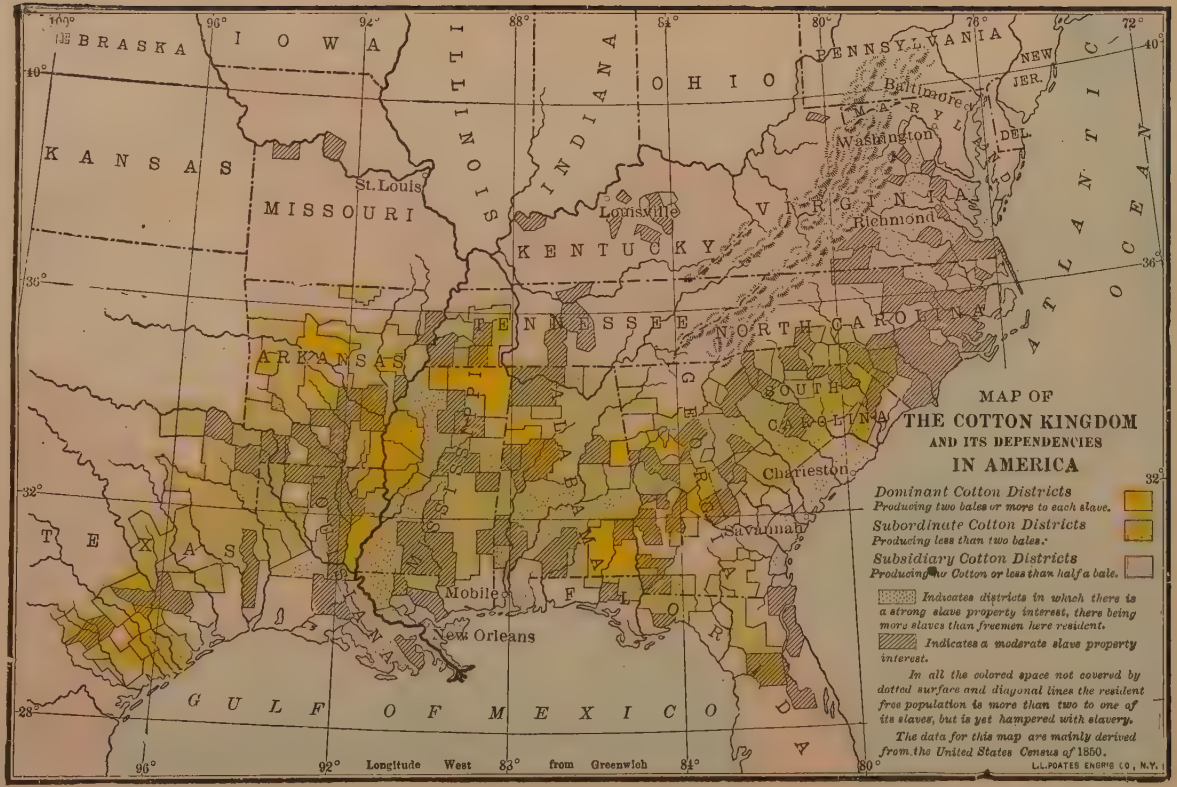
232. The plantation system. — By a plantation is meant a large agricultural unit in which the laboring force, generally of a large size and in bondage, worked under supervision in

the production of a staple commodity for sale. On a typical farm the laboring force would be small, the production would not be subject to regular routine, and the commodities might be raised for home consumption. "The plantation system was evolved," says Phillips, "to answer the specific need of

COTTON LEVEE AT NEW ORLEANS

Beginning about the first of September, the cotton is picked; after being ginned it is sent to the interior markets for sale. The cotton bought for export is then sent to the seaports, whose wharves are loaded with bales from October to January. New Orleans is one of the principal cotton seaports.

meeting the world's demand for certain staple crops in the absence of a supply of free labor." Under slavery the large plantation system was almost a necessity. Both the nature of the crop and the character of the labor rendered cultivation on a large scale the most economical. Intensive methods of


MAP OF
THE COTTON KINGDOM
AND ITS DEPENDENCIES
IN AMERICA
Dominant Cotton Districts
Producing two bales or more to each slave.
Subordinate Cotton Districts
Producing less than two bales.
Subsidiary Cotton Districts
Producing no Cotton or less than half a bale.
Indicates districts in which there is a strong slave property interest, there being more slaves than freemen here resident.
Indicates a moderate slave property interest.
In all the colored space not covered by dotted surface and diagonal lines the resident free population is more than two to one of its slaves, but is yet hampered with slavery.
The data for this map are mainly derived from the United States Census of 1850.
J.H. COATES ENGRG CO., N.Y.
Longitude West from Greenwich
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW JER.
DEL.
MARYL.
KANSAS
MISSOURI
St. Louis
Louisville
KENTUCKY
VIRGINIA
Richmond
Washington
Baltimore
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
ARKANSAS
Charleston
Savannah
TEXAS
Mobile
New Orleans
FLORIDA
GULF OF MEXICO
ATLANTIC OCEAN

farming were seldom possible under the indifferent and wasteful slave system. Consequently, the colonial method was persisted in, of cropping a piece of land until it was exhausted and then moving on to a fresh piece. Such a system required practically unlimited quantities of new and fertile lands; the need of new lands for cotton growing was indeed an important factor in the effort to widen our boundaries by the inclusion of Texas, Mexico, and the lands to the southwest. This method involved at once an enormous waste of natural resources and a rapid exhaustion of the soil. In every southern State there were enormous tracts of exhausted and abandoned cotton lands; in fact the uncultivated land far exceeded the cultivated. The following table [1] shows the difference in this respect between the different parts of the country:

AGRICULTURAL DEVELOPMENT IN FREE AND SLAVE STATES, 1860

	Free States and Territories	Border States (Ill., Md., Ky., and Mo.)	Slave States
Improved land, acres	88,730,678	17,547,885	56,832,157
Unimproved land, acres	72,983,311	27,474,315	143,644,192
Total quantity, acres	161,713,989	45,022,200	200,476,349
Cash value	$4,091,818,132	$702,518,382	$1,850,708,493
Average value per acre	$25.30	$15.60	$9.28
Agricultural implements, value	$142,077,802	$21,068,903	$82,971,438
Live stock, value	$574,067,208	$133,484,109	$381,778,598

233. King Cotton. — There was, as we have seen, a growing concentration in the South upon the cultivation of cotton. For twenty-five years the price of cotton had been pretty steadily falling, until it reached less than six cents a pound in 1845; the advance to nearly fourteen cents in 1857, occasioned by the expansion of manufactures in England after the tariff reforms of 1842–46 and the development of cotton manufacturing in France, greatly stimulated its cul-

[1] E. C. Seaman, Progress of Nations, II, 572.

tivation. In the decade 1850–60 the production per inhabitant in the southern States of every important cereal product, of cattle and swine, and even of the products peculiar to the slave States, as flax, rice, and sugar, fell off absolutely, while in the production of tobacco the increase was relatively less than in the northern States. In the case of cotton alone there was a relative as well as an absolute gain; it more than trebled in the twenty years, from 1,500,000 bales in 1840 to 5,300,000 in 1860. It is evident that almost the entire labor force and capital of the South were being directed into the one channel, the production of cotton. In 1820 the production of cotton had equaled 109 pounds to each slave; by 1853 it was 337 pounds per slave. These figures show a great concentration of slave labor upon cotton growing. There was indeed truth in the statement so often made, that "Cotton is King." Seven eighths of the world's supply of that staple was grown in the South. The expanding economic demand for the one staple which could be grown under slavery caused an extension of the slave system and entrenched it still further. This, in turn, had yet other consequences of great influence upon the South.

234. Advantages of slave labor. — There were certain surface advantages in a system of slavery. After his original investment, the slave-holder paid only the cost of maintaining his slaves and then possessed himself of their entire output. As a result of his absolute control over his slaves, the owner could direct, organize, combine, and move them as he saw fit for the attainment of his ends. On the other hand, in order to utilize to the utmost these advantages, those crops had to be cultivated which would permit of their application in the highest degree. Of all crops cotton conformed most perfectly to the conditions necessary to a profitable use of slave labor. Cotton culture was very simple, requiring few tools and only routine work. Furthermore, it gave employment for nine months in the year, so that the slave was idle very little of the time. And, most important of all, it permitted the organiza-

tion of labor on a large scale; a single slave could not cultivate more than three or four acres (as compared with thirty or forty acres in the case of corn), and they could therefore be more compactly massed than in the case of cereal crops. Owing to their ignorance and lack of versatility, it was possible to employ the negroes only on staple crops which called for mechanical labor. The existence in the South of a crop, like cotton, which met these requirements in a high degree, firmly entrenched slavery and caused its rapid extension.

235. Defects of slave labor. — That the Negro slave, at best only a generation or two removed from African barbarism, should have remained below the industrial standard of the white man, with his centuries of training, was natural. When to inherited incapacity are added the defects of the system of slavery, one cannot feel surprised at the inferiority of slave labor. Since his labor was forced, the slave gave it reluctantly; he put as little strength and earnestness into his work as was compatible with safety from flogging. Olmsted concluded that slaves were hardly one half as efficient as free laborers. This disinclination to work, and the frequent shamming it led to, necessitated the use of highly paid overseers, which tended to offset the cheapness of the slave labor. Another characteristic was its ignorance, clumsiness, and wastefulness. Only the heaviest and simplest tools could be used; improved implements and machinery and fine live stock could not be entrusted to the slaves. The inefficiency of slave labor as compared with the responsible and intelligent free labor of the North was thus greatly augmented. As it was impossible to introduce improvements in methods of agriculture or labor-saving devices into the South, this section of the country tended continually to fall farther behind the rest of the nation in the relative production of wealth. Finally, the lack of interest, of elasticity, and of versatility of slave labor confined the southern States to a few staple agricultural crops, and entirely prevented any diversification of industry or the rise of manufactures.

But the disadvantages of slavery were not confined to the character of the labor only. A defect of another kind was the difficulty a young man of small means experienced in getting a start in a slave district. Land was cheap, but to purchase the necessary labor force necessitated a large investment of capital — much more than was required for the land and live stock. It was difficult for any one to become a planter unless he had inherited slaves or had wealth. A farmer in the Northwest could expand his operations with very much less capital. Even in the case of wealthy planters the necessity of locking up a large amount of capital in slaves probably held the labor force down to a point below its most economical expansion.

236. Effect on the production of cotton. — The result of such a system was first that the production of cotton, great as it was, did not begin to equal the capabilities of the South. Only a small part of the land was cultivated; in 1850 De Bow calculated that the entire cotton crop of that year was grown on only 5,000,000 acres. And, secondly, since its cultivation depended now largely on slave labor, its production increased only with the growth of slavery. As this form of labor was increased at the best more slowly than similar supplies of free labor would have been, the system of slavery stifled the progress of the South even in that branch of production in which it was supposed to excel and to which it had sacrificed all others. There was no equilibrium between supply and demand; since his capital was all invested in slaves and cotton lands, the planter found it practically impossible to decrease his production in times of over-supply and equally difficult to increase it rapidly when the price rose. Cotton growing was thus extremely uncertain and speculative. The production of cotton probably lagged behind the economic demand during the decade and a half before the war, as is shown by the rising price of that commodity and by the great increase in the price of slaves. In 1840 the average value of all slaves dependent on cotton culture was estimated by De Bow at

$500; twenty years later Olmsted found that good field hands were worth $1400 on the average, while as high as $2000 was sometimes paid.

237. The economic cost of slave labor. — That slavery involved an economic loss to the nation and also to the South as a whole is evident. Was it profitable to the slave-owner? The items involved in the yearly cost of a slave to his master were many, including interest on capital invested in him, cost of maintenance (food, clothing, and lodging), depreciation, taxation, and insurance against death, sickness, and flight. Did these items amount to more or less than the wages of a free laborer? On this point may be quoted the testimony of a slaveholder from Kentucky about 1840, as reported by the English traveler, J. S. Buckingham:

"He said he had not only made the calculation, but actually tried the experiment of comparing the labour of the free white white man and the negro slave; and he found the latter always the dearer of the two. It took, for instance, 2000 dollars to purchase a good male slave. The interest on money in Kentucky being ten per cent, here was 200 dollars a year of actual cost; but to insure his life it would require at least five per cent more, which would make 300 dollars a year. Add to this the necessary expenses of maintenance while healthy, and medical attendance while sick, with wages of white overseers to every gang of men to see that they do their duty, and other incidental charges, and he did not think that a slave could cost less, in interest, insurance, subsistence, and watching, than 500 dollars or £100 Sterling a year; yet, after all, he would not do more than half the work of a white man, who could be hired at the same sum, without the outlay of any capital, or the incumbrance of maintenance while sick, and was, therefore, by far the cheaper labourer of the two."

The diet of the slaves was coarse but wholesome; cornmeal, with molasses, and generally bacon, were the staples. The clothing was of the coarsest, and the cabins, while rude, were

probably as good as the inmates could appreciate. Any comparison between slave labor and white free labor must be misleading, for many of the defects in the system were due to the fact that the slave was a Negro as well as a bondman. The real problem involved was that of the relative efficiency of slave and free Negro labor, an answer to which is the solution of the labor problem of the South to-day.

238. Character of plantation management. — The defects of the system were, however, not wholly due to the quality of the labor; the incapacity of the masters was also responsible for the failure of agriculture in the South. The absence of rotation or diversification of crops and of the use of fertilizers to prevent the exhaustion of the soil, of improved live stock, of machinery, building, and fences; in short the lack of a scientific agriculture, even among the small planters without slaves, was a frequent matter of complaint in southern journals and conventions. Large plantations were the rule: the average size of the farms in the ten cotton States in 1850 was 273 acres, and this had considerably increased by 1860. Some of the cotton plantations contained over 10,000 acres. These were confined, however, to the rich alluvial lands of the Mississippi bottoms. On the poorer and less fertile soils of the Piedmont and upland regions, which were illy adapted to plantation methods, small farms were the rule. On the large plantations the management was generally left to an overseer, who sought only to obtain the largest possible crop without regard to the future. Absenteeism of the owner was not frequent, as the planter's life was regarded as an ideal one. But the planters felt a contempt for labor, were often unenterprising and lazy, and did not develop their estates. Moreover, the profits secured from cotton production, instead of going to improve the land, were spent unprofitably or sunk in the purchase of fresh fields and additional slaves. The capital of the South was thus invested in fixed forms which tied it down to prevailing methods and permitted no improvement or diversification from year to year.

239. Moral effects of slavery. — The effects of slavery obviously did not end with the economic losses involved; more insidious and harmful were the moral results. Not only were the marriage relations among the slaves loose in the extreme, but they were rendered still more so by the breaking up of families through sale. Such a state of affairs, together with the possession of unlimited power on the part of masters and lax morals on the part of female slaves, reacted upon the relations between the whites and blacks. Of the treatment of slaves it is difficult to speak with accuracy. On the large cotton and sugar plantations, especially in the malarious rice-fields of Georgia and South Carolina, the Negroes suffered most. Here they were under the direction of overseers and were driven and herded in gangs. House servants and those owned in small numbers were usually treated with humanity and even consideration. The possession of absolute power by practically irresponsible masters must often have led to the abuse of that power and to inhuman conduct. Flogging necessarily accompanied the system of slave labor, but wanton cruelty in the use of the lash certainly did not rule. The treatment was probably severest in the lower South, but the supervision was strictest in the border States, where there was greater danger of running away. Slaves were regarded as only a form of property; they were sold and transferred like other commodities. Regular slave-markets were held where slave-

RUNAWAY SLAVE

This cut was a familiar illustration in southern newspapers, where it headed the advertisements of runaway slaves. The following is an example of such an advertisement: "Ran away, negress, Caroline; had on a collar with one prong turned down."

dealers auctioned off their human chattels. To the credit of the South it must be said that the slave-dealer was usually a social outcast. Every effort was made to keep the slave from rising, and while religious instruction was generally given, education was strictly forbidden by law.

240. Slavery and the population. — The ownership of the slaves was concentrated in a very few hands. Less than 5 per cent. of a population of 8,000,000 whites in the southern States owned the 3,950,000 slaves in the United States in 1860. Associated with these actual slave-owners were many persons, as merchants, lawyers, and even clergymen, who, while not slave-owners themselves, sympathized thoroughly with them in their attitude towards slavery. There was thus a strong segregation of the races as a result of this institution, but the stratification of neither race had proceeded very far. The Negroes may be differentiated into field hands, and house servants, artisans, mechanics, etc.; and the whites into the slave-owners and the professional and commercial classes at one extreme and the "poor whites" at the other. However, the white farmers tended to concentrate in the so-called white counties, where the soil was less fertile and the transportation facilities poorer, while the slaves with a sprinkling of whites were localized in the more fertile districts. There was also a small and growing number of free Negroes, though most of these were to be found in the North.

241. Progress of the South prevented. — Slavery prevented the growth of population in the South. Although they had started out almost even in 1800, the North had increased much more rapidly, having in 1860 a population of 19,083,927, as against 12,315,374 in the South. Much of this increase naturally came from foreign immigration, which avoided the slave States and peopled the central States and the great Northwest. Greater than this loss, however, was the lack of diversified industries in the South. Not merely was the agriculture confined to a few staple crops, but, most important of all, manufactures and mining were prevented from developing.

The Southern States were rich in natural resources, deposits of iron and coal, timber and water power, but these remained almost absolutely undeveloped prior to 1860. It was impossible to carry on these industries with slave labor, and so long as slavery existed, neither free labor nor capital could be attracted to their exploitation. Of the real and personal property in the country, $10,957,000,000 out of a total of $16,159,000,000 was credited to the northern States in 1859. Industrially and commercially the South remained stagnant, and not until war had abolished slavery was it prepared for the splendid industrial advance upon which it has now tardily entered.

242. **Summary: Sectional divergence.** — The most striking characteristic of this period was the growing sectional divergence of North and South. The East was developing its manufactures and finding a rapidly expanding market for them in the growing population of the West, while this section was exchanging for these its surplus agricultural products. East and West were rapidly becoming economically integrated and forming together a state that was already almost self-sufficing. The South, on the other hand, while she purchased large quantities of food stuffs and agricultural products from the West and furnished cotton and other staples to the East, was cut off by her "peculiar institution" from intimate social and political relations with the rest of the country. The sectional divergence reached a crisis when the expanding plantation slave system reached out after more land, which the people of the North determined should remain "free soil."

243. **Summary: Material Development.** — The system of protection to manufacturing industries was early adopted as a conscious policy by the American people, especially after the embargo and the War of 1812 had forced them to begin manufacturing for themselves. As the South, condemned by the inefficiency of slave labor to a primitive agriculture, could not hope to develop manufactures for herself, she naturally objected to paying higher prices to help northern manufacturers.

Thus the tariff first brought to a head the sectional differences, which were later to become so serious, between the slave and the free States.

As yet, however, the country was too new and undeveloped to permit the growth of a purely industrial state; the westward movement was the indication of a national impulse to appropriate and exploit the wealth of a virgin soil. The purchase of Louisiana Territory gave a definite aim to this movement, although it did not initiate it. Hand in hand with the settlement of the western lands went the improvement of the means of transportation. So important was this that both Federal and State governments lent their aid to building turnpikes and canals, but, after some rather disastrous experiences with these, left to private corporations the task of providing the country with railroads. Protection to American industries and the development of internal improvements were the two parts of the "American System," which engaged the energies of the nation during this period. Capital and enterprise began to be diverted from foreign trade to internal development, and the first stage in the decline of the ocean merchant marine commenced. On the whole, it was a period of extraordinary material development, in which the exploitation of its natural resources became the definite aim of the people of the United States.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XVIII

The first problem of the South, after the invention of the cotton gin, was how to obtain an abundant supply of labor as quickly as possible. Having answered that problem, she had next to ascertain how to organize and use this labor force in the most economical fashion.

1. What differences were there between slavery in the ancient world and in the United States? [R. H. I. Palgrave, Dict. of Pol. Econ., art. Slavery; Encycl. Brit., art. Slavery.]

2. What was the "black belt"? [W. G. Brown, Lower So. in Amer. Hist., 25.]

3. What proof or illustrations can you give to show that the ineffi-

cient methods of the masters were responsible for the industrial backwardness of the South? [E. Ingle, 56–58; F. L. Olmsted, all books.]

4. Mules were generally used on southern plantations instead of horses; why? [F. L. Olmsted, Seaboard Slave States, 47; Ingle, 60.]

5. What effect did the existence of slavery have upon the education of southern white children? [J. F. Rhodes, Hist. of the U. S., I, 343.]

6. What effect did the institution of slavery have upon the attitude of the South to the questions of (*a*) protection and tariff, (*b*) internal improvements? [J. B. McMaster, Hist. of People of U. S., V, 170.]

7. What effect upon their attitude to the annexation of Texas, and the war with Mexico? [M. B. Hammond, 55–58; E. Ingle, chap. 9; Brown, Lower So., 83–112.]

8. Was there any internal migration of free whites from the southern States to other States? To which, and why? [Eighth Census (1860), vol. Pop., 33–34.]

9. What proportion of the total exports and imports respectively belonged to the South? Did this involve a loss to the South? [D. R. Goodloe, Resources and Ind. Conditions of Southern States. Rep. of U. S. Dept. of Agric., 1865, 117; J. D. B. De Bow, Wealth and Resources of the South and West.]

10. What were some of the non-agricultural industries of the South, and how far were they developed? [Ingle, chap. 3; Coman, 249–254; De Bow, *passim*.]

11. Trace the development of manufactures in some typical southern State up to 1860. [Eighth Census (1860), vol. Manufactures, 11–14; Ingle, chap. 3]

12. What proportion of the food, clothing, etc., consumed in the South was raised there? [Ingle, 64; Sir. M. Peto, 308; Eighth Census (1860), Manuf., 67; De Bow, III, 195–207, 285–299.]

13. What was the proportion of large and small farms in the North and South? [E. C. Seaman, II, 572; Eighth Census (1860), vol. Agric., 221.]

14. How much capital was invested in slaves in 1860? If slavery had never existed, how would this wealth probably have been invested? Would the South have been better off?

15. How did the growth of cities in the South compare with those of the North? [Twelfth Census (1900), I, 24–25.]

16. What was the development of railroads in the South? [Ingle, 99; Coman, 252; De Bow, II, 435–454.]

17. Was the movement towards emancipation so strong before 1860 as to lead you to believe that the slaves would have been voluntarily freed in a short time? [Brown, Lower So., 50–83; Coman, 256–258; De

Bow, II, 262–292; Olmsted, Seaboard Slave States, 125–133, 633–637; Eighth Census (1860), vol. Pop., 15–16.]

18. Describe the effects of serfdom and the emancipation of the serfs in Russia. [I. Hourwich, the Economics of the Russian Village, in Columbia Studies in Hist., Econ., and Pub. Law, II, no. 1; N. I. Stone, Capitalism on Trial in Russia, in Polit. Sci. Quart., XIII, 91; P. Leroy-Beaulieu, The Empire of the Tsars and the Russians, I, 403–473, 505–579; V. G. Simkhovitch, The Russian Peasant and Autocracy, in Polit. Sci. Quart., XXI, 569–595.]

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PART IV

ECONOMIC INTEGRATION AND INDUSTRIAL ORGANIZATION (1860–1900)

CHAPTER XIX

THE APPLICATION OF MACHINERY TO AGRICULTURE

244. Effect of the Civil War. — The period from 1860 to 1900 was characterized by the entrance of the United States into the world's markets as the chief source of supply of food products and of raw materials for Europe. During that time the United States assumed the leading place as a producer and exporter of breadstuffs and grains, as she had already of cotton and tobacco. The Civil War affected the agricultural development of the country both directly and indirectly. As a result of the war demand for agricultural products, prices rose rapidly and production was greatly stimulated. At the same time the organization of great armies withdrew thousands of men from the farms and diminished the labor supply, a loss which was but partially made up by the immigration from Europe. One result of the scarcity of labor was the application to agriculture on an unprecedented scale of labor-saving machinery. It has even been asserted that the issue of the Civil War was decided by the invention of the reaper. The number of two-horse reapers in operation throughout the country, in the harvest of 1861, was estimated to have performed an amount of work equal to about a million men. The ultimate victory of the North was no doubt largely due to the fact that during the war the gathering of

the harvests and the development of the Northwest proceeded uninterruptedly. For instance, the wheat production of Indiana increased from 15,000,000 bushels in 1859 to 20,000,000 in 1863, although one tenth of her male population was in the army. In 1865 it was estimated that there were not less than 250,000 reapers in use in the United States, each of which would cut an average of ten acres in a day of twelve hours. On the other hand, the greatest blow struck the South was the establishment of a naval blockade which prevented the marketing of her great staple, cotton.

245. Growth of the grain States. — The population of the grain States (*i.e.*, the North Central division) increased during the decade 1860–70 by more than 42 per cent., and in the next decade by nearly 34 per cent.; this represented an addition to the population in twenty years of over 8,000,000 inhabitants. The opening of new land to settlement stimulated immigration to such an extent that 2,500,000 persons came to the United States during the decade 1860–70, to be followed in the next ten years by 3,000,000 more, a large proportion of whom settled in the middle West. The greatest growth took place in the newer States of the Northwest, although even in the older States, like Illinois, Iowa, and Missouri, the increase was more rapid than the general rate. In the single decade 1870–1880 over 190,080,000 acres, or a territory equal in extent to Great Britain and France combined, were added to the cultivated area of the United States. Again, in the twenty-year period, 1880–1900, there were added to the farm area over 305,000,000 acres. Such a development was made possible by the extension of the railroad system in the grain region, which opened up new areas for cultivation and made it possible to market the product speedily and economically. A powerful influence leading to the settlement of the spring wheat section of the Northwest was exerted by the introduction in the early seventies of the "new process" of reducing wheat to flour. Iron and porcelain rollers replaced the old millstones, the grain being run through half a dozen sets of

rollers.[1] Whereas previously the flour made from spring wheat had been of inferior grade, it was now rendered superior to that made from winter wheat; consequently the price of spring wheat advanced and greatly stimulated the wheat-raising industry of that section. Between 1870 and 1880 the population of Minnesota and the Dakotas, where it was chiefly grown, increased from 453,887 to 915,950.

246. The Homestead Act. — The passage of the Homestead Act in 1862 made easy and profitable the acquisition of a farm home, especially for those with little capital. The fundamental principle of the act was the grant of a free homestead not exceeding 160 acres to the actual settler; after five years' residence the title passed, without charge, to the "homesteader." As a result of this law thousands of people took up the free land of the middle West, over 65,000,000 acres being given away to individuals during the twenty-year period 1860–1880. This fact was the logical outcome of the pre-emption system and has since been the accepted policy of the government in disposing of the public lands. The settlement of the public domain was further stimulated by modifications of the Homestead Act, making it easy for ex-soldiers of the Union armies to acquire title to government land, and by the rising tide of immigration. So rapid was the settlement of free land that by 1880 the "frontier" had entirely disappeared and there was practically continuous settlement from ocean to ocean. Of the Homestead Act the Public Land Commission said: "It protects the govern-

[1] "Spring wheat is especially rich in gluten, which is advantageous in bread-making. But so long as the stones were set close together and the grain reduced to flour at one grinding, the bran, which is coarser in spring wheat, remained with the flour, discolored it, and by absorbing moisture caused it to spoil. The new process consisted in setting the stones farther apart at first and removing the bran in large pieces before reducing the rest to flour. The germ, being oily, is also removed. The roller or "patent" process differs chiefly in that buhr-stones are replaced by rollers, but the principle of successive millings is retained." E. V. Robinson, Commercial Geography, p. 159, note.

ment, it fills the States with homes, it builds up communities and lessens the chances of social and civil disorder by giving ownership of the soil, in small tracts, to the occupants thereof. It was copied from no other nation's system. It was originally and distinctly American, and remains a monument to its originators."

247. Number and ownership of farms. — The increase in the number of farms, from 2,044,077 in 1860 to 4,008,907 in 1880, and to 5,700,000 in 1900, resulted partly from the inclusion in the farm area of hitherto uncultivated lands and partly from the subdivision of existing farms; the former was true principally of the West, the latter of the South. This was a rate of growth more rapid than that of the population. Accordingly, the agricultural population was much better provided with separate farms at the end of this period than at the beginning; between 1850 and 1900 the proportion of farms to the rural population increased from 1 farm for every 14 persons to 1 farm for every 9 persons. This gain represented both the subdivision of old farms and the taking up of new land. The average size of farms declined between 1850 and 1880, owing to the resort to more intensive farming in the eastern States and to the division of the large southern plantations after the Civil War. After 1880 there was a slight increase again in the size of farms (from an average of 133.7 acres in that year to 146.6 acres in 1900) as a result mainly of the inclusion in the census reports of the grazing ranches of the Southwest.

The addition of such a vast area to the improved farm lands — over 425,000,000 acres between 1860 and 1900 — and the accompanying expansion of production, was not without its disadvantages. Although the United States thereby obtained a leading position as a producer and exporter of foodstuffs, there was involved the partial disorganization of agriculture in the eastern States and discontent in the West itself. So eager were the settlers to acquire land on such favorable terms that the taking up of farms proceeded more

rapidly than was justified by the economic demand for the products they raised. There was thus a great over-production, especially of wheat, and prices were greatly depressed. In many cases, perhaps the majority, crops were grown at a loss, the rise in the value of the land being counted as the real reward. The result was naturally an over-supply of farm products, with consequent low prices, which seriously affected land values and production in the older sections of the country and led to a vast amount of discontent among western farmers. This found expression in a series of farmers' movements beginning with the Granger movement of the early seventies and ending with the Populist movement in the early nineties.

The increase in the production of the six principal cereals during this period is shown in the following table:

PRODUCTION OF CEREALS, 1860–1900 (IN THOUSANDS OF BUSHELS)

Year	Indian corn	Wheat	Oats	Barley	Rye	Buckwheat
1860	838,792	173,104	172,643	15,825	15,540	17,571
1880	1,754,861	459,479	407,858	44,113	19,831	11,817
1900	2,666,000	658,500	945,000	110,600	25,500	11,000

248. Ownership of farms. — More important, however, than the expansion of the farm area was the question of farm tenure. In 1880, for the first time, statistics of farm ownership were published in the census, when the gratifying result was revealed that three quarters (74.5 per cent.) of the farms in the United States were operated by their owners. After that the proportion fell considerably, to 71.6 per cent. in 1890 and 64.7 per cent. in 1900, and alarm was expressed that our democratic conditions of land ownership were giving way to a system of tenantry. The reverse, however, seems to have been true, and the growth of the tenant class indicated rather the endeavor of farm laborers and persons of small means

to make themselves independent than the fall of owners to the rank of tenants. This is shown by the steady growth of farm owners, more rapid even than the increase in the agricultural population. The greatest increase in tenant farming was in the South, where the large plantations were being broken up and cultivated by small cash or share tenants.

The division of the plantations of the South and of the "bonanza" farms of the West showed the extension of the small farm system rather than the decline of ownership; a large proportion of the tenant farms in 1900 were under 20 acres. A study of the ages of operating owners, tenants, and laborers strengthens this conclusion. Almost 90 per cent. of the farm laborers were under 35 years of age, 67 per cent. of the tenants were under 45, while nearly 60 per cent. of the owners were over 45 years of age. There was thus, with advancing age, a steady rise from the condition of laborer to tenant and finally to that of owner. Nor did the existence of mortgage indebtedness warrant any gloomy foreboding; taken in connection with the other facts it must be held to represent the struggle of the former tenant to purchase an equity in the land he tilled, or of the small owner to provide himself with the necessary capital for improvements.

249. Regional specialization. — With the change from self-sufficing to commercial agriculture there went on increasing concentration on certain great staples best adapted to the different regions. The production of a few staples on a large scale was made possible by improved farm machinery and transportation facilities and ready access to markets; this specialization in turn stimulated the invention and application of machinery and the development of large-scale methods. In New England, which felt most severely the competition of the fresh wheat and corn lands of the West, resort was had to a more intensive cultivation, or else the land went out of cultivation; dairying and mixed farming were found most profitable. The production of hay and grain employed almost

every farm throughout the North Central and Northwestern regions; corn far outstripped all other grains in importance. In the South cotton was practically the only crop below the thirty-fifth parallel of latitude, while north of this tobacco, grains, and live-stock supplemented but did not supplant cotton. The raising of live-stock was the chief industry in the semi-arid region of the Far West, and was also important generally throughout the northern States. The North Central division constituted the greatest farming section of the country, producing in 1900 half of the agricultural wealth of the country. Within this district Iowa led as our most important farming State, with products valued at $365,000,000.

250. Agricultural machinery. — The application of machinery to agriculture, which had begun before the war, was now made on a still more extensive scale, the value of farming implements and machinery increasing from $246,000,000 in 1860 to $406,000,000 in 1880, and to $761,000,000 in 1900. It was estimated in 1880 that over 10,000 patents had been granted in this country up to that time for implements and machines connected directly with the cultivation, harvesting, and handling of grain. Of these the most important were the threshers (first driven by horse power and then by steam), the reapers, and finally the complete harvester. By means of these improved agricultural machines the average amount of grain that could be harvested, threshed, and prepared for the market, from the standing grain to the marketable product, by a single man per day, was increased from about 4 bushels in 1830 to about 50 bushels in 1880. A few years later Mr. D. A. Wells estimated that the labor of three to four men on the great wheat-fields of Dakota would annually produce, convert into flour, and transport to the seaboard one thousand barrels of flour, or enough for the yearly consumption of one thousand persons. Perhaps the twine binder, more than any other single invention, was responsible for this expansion, for the limit upon production was set by the possibility of harvest-

ing rather than of planting or of growing. The effect on the production of wheat is seen in the growth of the per capita production for the United States from 5.6 bushels in 1860 to 8.7 bushels in 1900. At the same time the cost of wheat bread to the consumer was greatly cheapened.

A Modern Corn Harvester

A machine cutting and binding corn in a Michigan farmer's field. The bundles of corn are afterwards stacked in shocks in the fields for drying, after which the corn is husked, usually by hand, on the field or in the barn.

The greatest development took place on the enormous farms of the Far West; here were used enormous fifty horse-power steam traction engines to operate plows, harrows, drills, harvesting machines, etc. But in the middle West the progress was no less rapid, and the work of planting, cultivating, and

husking corn was carried on by machinery; particularly important in this connection was the "check rower" which allowed the planting of the crop in rows running in two directions, thus permitting cross-cultivation. Mowing machines, horse hay-rakes, tedders, and stackers revolutionized the work of making hay; while potato planters and diggers, feed choppers, and grinders, manure spreaders, ditch-digging machines, and innumerable other implements greatly lessened the hand labor required.

The introduction of machine power had many far-reaching results. It greatly increased the efficiency and mental activity of the workers, and at the same time lessened the physical strain upon them. It has been estimated that in the case of nine of the more important farm crops, in the production of which machinery was much used, the average increase of efficiency between 1830 and 1895 was nearly 500 per cent. Machinery increased the output of farm products; this caused a fall in the price of farm products, and the lessened cost of food benefited all classes; the farmer did not suffer materially from the smaller price per unit, as this was more than offset by the larger output. The increased output and lower prices also brought about a redistribution of the working force of the country. Not being needed on the farm, the farmers' children moved to the city and devoted themselves to other occupations. It has been said that the American farmer during this period was a miner rather than an agriculturist; that he extracted the wealth from the soil without again restoring the lost qualities. With the increased use of farm machinery and the large capital investment required, the modern farmer might fairly be regarded as a manufacturer; agriculture was becoming more of a business and less an art exposed to the caprices of nature.

The motive power for most of this machinery was that of the horse or mule; accordingly the increase in the number of these animals proceeded *pari passu* with that of farm machinery. There were in the United States in 1900 over

24,000,000 horses and mules on the farms alone; whereas, including those in the towns, there were in Germany only 4,184,000, in France 2,903,000, and in Great Britain 2,000,000. "The agricultural supremacy of the United States," wrote Professor Leroy-Beaulieu, "has been won through the combined use of machinery and domestic animals to turn into wealth the fertility of a virgin soil."

GREAT NORTHERN ELEVATOR AND SHIPPING, BUFFALO, N. Y.

Elevators are used for storing grain until it is wanted for use. The larger modern elevators consist of huge steel tanks or bins, capable of holding 500,000 to 1,000,000 bushels. They are usually built by the water and with rail connections, as shown above, so that the grain may be shipped either by water or rail. The vessel at the extreme left in the foreground is a whaleback, a fast-disappearing type on the Great Lakes.

Hardly less important than the invention of agricultural machinery were the improvements in the methods of transporting and handling the grain. As long as it remained in the farmer's hands the grain was carried entirely by hand in bags or sacks and was moved by teams. After it left the farm it was handled and carried in bulk by steam power. A system

of grading and classification was established by which all specific lots of a certain grade were dealt with together in bulk, in the most economical manner. The use of elevators for transferring or storing grain made it possible to unload and elevate the grain, in the best establishments, at the rate of a carload a minute; vessels were loaded in turn from the elevators at the rate of 8000 to 10,000 bushels an hour. The use of such unique methods alone made it possible to handle the growing grain trade of the country.

251. Growth of the international grain trade. — One result of the great movement of grain by steam was the better distribution of the world's grain supply. Before that a short crop in any country meant dear bread in that place, if not famine, but now the shortage of one country was quickly made up by the surplus of another. The exportation of breadstuffs by the United States did not begin on a large scale until after 1860, but during the Civil War the exports increased enormously, partly owing to the fact that the cutting off of the market in the southern States threw a large surplus into the channels of foreign trade. The following decade disclosed an even more astonishing growth. As the increase in cereal production was twice as rapid as the growth of population, a large exportable surplus was grown each year. The exports of wheat and corn — the only two cereals sent abroad to any extent — are shown in the following table:

CHIEF EXPORTS OF CEREALS. AGGREGATE FOR TEN YEARS ENDING

Year	Wheat (bushels)	Wheat Flour (barrels)	Indian Corn (bushels)	Corn Meal (barrels)
1860	51,709,036	27,701,638	54,784,029	2,438,531
1870	187,686,309	30,360,781	102,527,365	2,578,247
1880	550,767,121	37,117,241	439,656,935	3,422,376
1890	1,266,156,082	(1)	584,598,997	(1)
1900	1,730,445,736	(1)	1,131,192,445	(1)

(1) Not given separately; included in previous column.

One interesting change took place in the exports of wheat — whereas in 1830 flour constituted 99 per cent. of the total wheat exported, by 1880 it had fallen to less than 25 per cent. This change was due largely to the protection given by various European countries to the milling interest. As a result most of the American flour still exported went to the West Indies and to the South American countries. The United States was already the most important wheat-exporting country in the world, supplying about half the needs of wheat-importing nations. Russia, Austria-Hungary, and Turkey were the other most important wheat-growing countries, while Great Britain, Switzerland, Italy, and Belgium were our best customers. Of Indian corn only 5 per cent. of the total crop was exported, the rest being used chiefly as a feed crop at home.

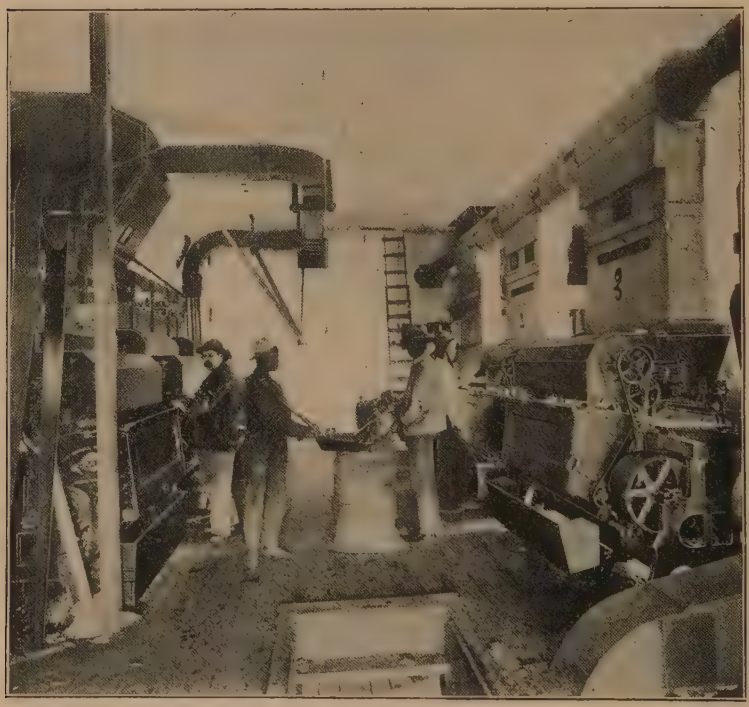
252. Failure of the plantation system in the South. — Under the system of slavery a large part of the capital of Southern planters which would otherwise have taken the form of improved lands, buildings, and machinery had been invested in slaves. The 3,953,760 slaves in the South in 1860 were valued at $2,000,000,000; in the planting States this form of property greatly exceeded all others, both real and personal. The Civil War not only swept away this form of property, but resulted in the destruction of buildings, tools, cattle and other capital. The high price of cotton, however — 43 cents a pound in 1865 and 30 cents in 1866 — encouraged the planters to revive its production. Many borrowed the necessary capital, thus introducing on a large scale the system of agricultural credit which has since been so characteristic of southern agriculture, and proceeded to raise cotton with hired labor. This had two unfortunate results: in the first place, there was an over-production of cotton, causing a rapid fall in the price; in the second place, it led to a revival of the old one-crop plantation system, with its concentration on cotton. The wage system which was thus inaugurated was found to be utterly unsatisfactory, as the freedmen were quite irresponsible. The character of the labor and the falling

price of cotton, in addition to the burden of over-taxation under the carpet-bag governments, caused the ruin of many planters, and vast areas of land went out of cultivation. "Plantations that had brought from $100,000 to $150,000 before the war and even since, were sold at $6000 or $10,000 or hung on the hands of the planter and his factor at any price. The ruin seemed to be universal and complete, and the old plantation system, it then seemed, had perished utterly and forever."[1] The total value of farming lands in the South declined over 48 per cent. between 1860 and 1870.

253. The era of small farms. — An era of small farms followed the failure of the large plantation system under free labor, and the large land holdings were broken up to suit small purchasers. Many of the white yeomen and not a few negroes purchased farms of ten to twelve acres, and proceeded to raise cotton on their own account. In Mississippi, for example, there were but 412 farms of less than 10 acres in 1867, and 10,003 in 1870; the number of small farms of less than 100 acres increased 55 per cent. in the South during the decade 1860–70, while the average size of farms decreased from 401.7 acres to 229.8 acres. Nearly 40 per cent.of the laborers engaged in the cultivation of cotton by 1876 were whites, as against about 11 per cent. before the war. In fact, it was mainly the poorer whites who took over the land relinquished by the large *ante-bellum* planters and began the process of regenerating the South. Most of the land was not bought outright by the small farmer, however, but was worked on shares; the system of cash rents was never widespread. Under these systems the methods of production were gradually improved, fertilizers and improved machinery were more generally used, and the average yield of cotton per acre increased from 172 pounds in 1860 to 222 in 1870. The total yield of 2,275,372,000 pounds in 1860, the last uninterrupted year of production under slavery, was, however, not equalled until 1879, when the product was 2,404,410,000 pounds.

[1] H. W. Grady, in Harper's Magazine, 53: 721.

254. The system of agricultural credit. — Although the method of advancing money and supplies on growing crops was practised in the South before the war, the necessities of planters after that event made its use characteristic of



A Modern Cotton-Gin

Gin houses are built nowadays at railroad centers, where the ginning for the neighborhood is done. A modern establishment contains, in addition to the steam-roller gin, which separates the fiber from the seed, various other devices designed to care for the seeds and lint after separation. But the essential elements of Whitney's original gin still remain, though magnified many times over.

southern agriculture. Cotton factors advanced the capital necessary to revive the production of this staple, themselves often borrowing from commission houses, and taking a crop

lien on the growing crop of the planter. When falling prices resulted in the breaking up of the plantation system and the rise of a small tenant and freehold farming class, the system was extended. The lender was now, however, the merchant and country storekeeper, who was personally familiar with the small borrower and who could, moreover, exercise constant supervision over the crop. While economically necessary at first as a means of securing the needed capital, this practice of agricultural credit soon resulted in a system of peonage of the debtor farmer to the merchant who became his creditor, under which the debtor was kept almost in a state of serfdom, working for his creditor until his debts were paid. All supplies must be purchased through the creditor, and the crops must be sold through him, on both of which transactions lucrative commissions were charged in addition to frequently usurious rates of interest.

This system had certain undesirable effects. Since cotton was the most marketable crop and would always sell for cash, the lender insisted that the farmer concentrate his efforts upon cotton growing. In the second place, since the farmer was compelled to buy all his supplies from the lender's store, he was discouraged from growing his own corn or bacon since this would diminish his purchases. As Hammond put it, "The raising of corn would not only give a less marketable crop into the hands of the merchant, but it would eventually lose him his customers, for the raising of his own supplies would release the farmer from the necessity of doing business on a credit basis." Diversification of farming and even rotation of crops were thus prevented in the South.

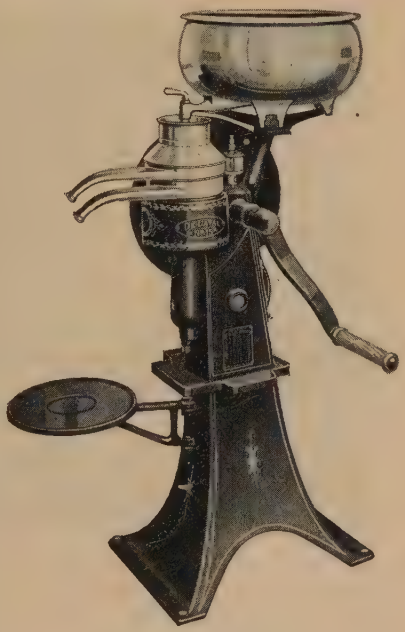
255. Live-stock. — Cattle raising is a frontier industry, and accordingly it has not only been carried on most extensively in the western part of the country, but it has also been a more important industry in the United States as a whole than in Europe. The so-called "native" cattle, probably the descendants of Spanish cattle brought over by Cortez, had multi-

plied rapidly in Texas, and after the Civil War an outlet for them was sought in the North. It was discovered that if Texas cattle were driven to the northern ranges they gained more rapidly in weight than if they remained in Texas; and moreover the beef thus matured was of better quality. By 1870 a clearly defined cattle-trail had been marked out over which an average of about 300,000 cattle were driven northward annually from the breeding grounds in Texas. The points where the cattle-trail crossed the transcontinental railroads became important cattle markets and shipping-points. After 1885 the importance of the cattle-trail began to decline, partly because the taking up of western land in farms reduced the amount of the free range, but chiefly because the railroads were built into the heart of the cattle country and transported the cattle direct to market. They were fattened now in the corn-growing regions of eastern Kansas and Nebraska, Iowa, Missouri, and Illinois.

The process of converting this live stock into food for human consumption began its wonderful growth during this period. The invention of the refrigerator car, the first shipment by which from Chicago to New York took place in 1869, gave a wonderful impetus to the slaughtering and meat-packing industry. Pork-packing, which had been done mainly in the winter up to this time, was now possible during the summer; the number of hogs killed grew from 992,310 in 1860 to 11,001,699 in 1880, and to 28,742,551 in 1900. The dressed beef trade, too, was given a stimulus by the introduction of the refrigerating process. The export of fresh beef dates from 1876, though the exportation of live cattle had already begun in 1870. The total value of the products in the slaughtering and meat-packing industries grew enormously, from about $29,000,000 in 1860 to $303,500,000 in 1880, and $790,000,000 in 1900.

256. Dairy products. — The dairy industry was also revolutionized by the introduction of factory methods in the making of butter and cheese, although a beginning had been

made before the Civil War. Cheese-making developed rapidly under the factory system during the sixties and seventies, and by 1880 more than four-fifths of the cheese produced in the United States was made in factories. There were natural limits to the expansion of the industry, however, in part, the relatively small domestic consumption of cheese, and in part the lack of a foreign demand for the American product. After 1880 butter-making displaced cheese as the leading dairy industry. At that time, however, most of the butter was still made on the farms, and the common form of churn in use for butter making was aptly described by a child's riddle: "Big at the bottom and small at the top, a thing in the middle goes flippety-flop." A great stimulus to the development of factory methods in butter making was given by the invention of the Babcock test for determining the butter-fat of milk, and of the centrifugal cream separator for extracting the cream without having to "set" the milk and wait for the cream



CREAM SEPARATOR

The invention of the Babcock test, for determining the butter-fat of milk, and of the centrifugal machine for separating cream from milk, by reducing the cost, gave a great impetus to butter making. In such a machine the cream is separated from the milk by centrifugal force — the heavier milk being thrown outward from a rapidly revolving cylinder while the cream remains at the center. In a butter or cheese factory the separators and churns are driven by steam; the old processes of "setting" and "skimming" and of churning by hand have given place to factory methods.

to rise. The center of the butter-making industry came to be located in the corn-belt, Elgin, Illinois, being one of the greatest butter markets in the world. The Americans probably consumed more butter than any other people.

POWER CHURN AND BUTTER MIXER

Butter is made by separating the butter-fat in cream form from the milk serum by the process of churning, which consists in agitating the cream. In the old-fashioned dash churn the motion was largely one of stirring, but the modern churn as shown in the pictures secures the result by means of the concussion of the particles upon the sides of the revolving or moving vessel. At the right of the churn is the butter mixer, a revolving table with fluted power roller under which the butter is brought by the revolutions of the table. The mixer works out the butter-milk, a process which was formerly done by hand. The latest churns are fitted inside with rollers, by means of which, after the churning and washing, the butter is worked and salted without being removed from the churn.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XIX

During the Civil War the first problem was that of raising sufficient food; this was answered very differently in the North and the South. After the war the problem was one of readjustment, but this also was very unlike in the two sections. The difficulties were enhanced by the

rapid taking up of new land and consequent overproduction, which gave rise to other problems.

1. Describe the effect of the Civil War on the agriculture of the South. [J. C. Schwab, The Confederate States of America, chap. 12; J. W. Garner, Reconstruction in Mississippi, chaps. 4, 16; W. E. B. Du Bois, Souls of Black Folks, chap. 2; Du Bois, Negro Farmer, 79–81; M. B. Hammond, The Cotton Industry, 127; W. L. Fleming, Reconstruction in Alabama.]

2. What was the effect of the increase in the exportation of grain and decrease in that of cotton during the Civil War upon the independence of the Confederate States? [E. D. Fite, in Quart. Journ. Econ., XX, 263–7.]

3. What relation, if any, can be shown to exist between the price of wheat and the development of the West? [T. Veblen, Price of Wheat since 1867, in Journ. of Polit. Econ., I, 68–94.]

4. What were the principal causes of the growth of our grain exports after 1860? [Report of U. S. Com'r. of Agric. 1862, pp. 66–73; 1876, pp. 164–180; 1889, pp. 251–264; 1891, pp. 228–340; Dunn, Amer. Farms and Foods, chaps. 12, 25; Fite, in Quart. Journ. of Econ., XX, 260–262.]

5. The average yield of wheat per acre in England was 35 bushels, and in the United States about 15. Why did England import wheat from the United States?

6. Trace the agitation for the free distribution of the public lands. Do you consider it a wise measure? [K. Coman, 279; T. Donaldson, 332–350; S. Sato, Hist. of the Land Question in the U. S., 428–439; T. V. Powderly, Thirty Years of Labor, chap. 8; Congressional Globe, *1861–62*, pp. 40, 132–139, 909–910.]

7. What was the national grange? What good did it accomplish? [E. W. Martin, Hist. of the Grange Movement; Adams, Granger Movement, in No. Amer. Rev., CXX, 394; F. J. Foster, The Grange in New England, in Annals, IV, 798–805; C. W. Priesen, Outcome of the Granger Movement, in Pop. Sci. Mo., XXXII, 201; W. P. D. Bliss, Encycl. of Soc. Ref., art. Grange..]

8. What were the grievances of the farmers that led to the so-called Granger movement? What remedy was sought? [Adams, in No. Amer. Rev., CXXX, 394; W. G. Moody, Land and Labor, chap. 3; Martin, Hist. of Grange Movement, part 6; A. T. Hadley, Railroad Transportation, 129–139; Adams, Railroads, 123–132.]

9. Why was there such wide-spread discontent among the farmers about 1890? [Rep. Ind. Com., VI, 36–143, 225–268; W. A. Peffer, Farmer's Side; C. F. Emerick, An Analysis of Agricultural Discontent, Pol. Sci. Quart., XI, XII; J. R. Elliott, Amer. Farms, books 2, 3;

E. Bemis, The Discontent of the Farmer, in Journ. Pol. Econ., I, 193–213.]

10. Sketch the history and demands of the Populist Party. [Peffer, Farmer's Side; Peffer, Mission of Pop. Party, in No. Amer. Rev., Dec., 1893; Walker, The Farmer's Movement, Annals, IV, 790; W. Gladden, The Embattled Farmers, in Forum, X. 315; F. L. McVey, The Populist Movement; W. D. P. Bliss, Encycl. of Soc. Ref., arts. Farmer's Alliance, Farmer's Movement, People's Party; Drew, The Present Farmer's Movement, in Pol. Sci Quart., VI, 282–310.]

11. How long would it have taken to harvest the crops of 1900 with the hand implements in use 75 years before? [H. W. Quaintance, The Influence of Farm Machinery on Production and Labor, in Publ. Am. Econ. Ass., 1904; 13th An. Rep. U. S. Bur. of Lab. Stat.; H. N. Casson, The New Amer. Farmer, in Rev. of Rev., XXXVII, 601.]

12. Was the change in the proportion of farms to the non-urban population from one farm to 14 persons in 1850 to one farm to 9 persons in 1900 (sec. 247) due to an increase of farms or to a decrease in the farming population? [Census (1900), vols. I, V.]

13. What effect, if any, did the introduction of farm machinery have upon the character of farm labor? [Quaintance, 69–92.]

14. Trace the history of the flour milling industry. [Pillsbury, American Flour, in C. M. Depew's One Hundred Years of American Commerce, I, 266–273; G. G. Tunell, in Jour. of Polit. Econ., V, 340–375; Wheat in Commerce: Bureau of Statistics, Summary of Commerce and Finance for March, 1888, p. 1400.]

15. Describe the growth of the pork-packing and dressed beef industries. [Armour, The Packing Industry, in Depew's One Hundred Years of American Commerce, II, 383-388; U. S. Agric. Reports, 1853, p. 50; 1863, p. 207; 1875, p. 96; 1876, p. 312; 1877, pp. 374–382; 1881, pp. 613–614; 1889, pp. 69–74; 1891, p. 318.]

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CHAPTER XX

THE EXTRACTIVE INDUSTRIES

257. The mineral industries. — The extractive industries exploit directly the natural resources of a country. This development will be determined at any time by their extent, by man's ability to extract them, and by the stage of the arts for which they form the raw materials. The United States is wonderfully blessed in the possession of vast stores of mineral wealth, tin being almost the only one of the metals not present in abundance. Before 1869 this mineral wealth was either not discovered or was used to only a limited extent. The great demand came only with the development of manufactures after the Civil War, the period 1860–1900 witnessing the first great exploitation of our mineral wealth.

"Iron and coal," says Trotter, "more than any other mineral substances, are the basis of a nation's prosperity, and with a fertile soil form the tripod upon which modern civilization rests." Considered as a whole, the fertility of the soil of the United States is remarkably great, as has been indicated in previous chapters. The same thing is true of the mineral resources of the country. Indeed the wonderful industrial advance of the latter half of the nineteenth century must be attributed, in large part, to the extent and richness of these natural resources upon which have been built up the manufacturing and transportation industries.

The rapidity of the advance of the mineral industries of the country may be indicated by the figures of production. In 1860 the value of the products of the mines and quarries in the United States was reported by the census as almost $90,000,000; in 1880 it was over $250,000,000, and in 1900 for the first time it exceeded $1,000,000,000. This was

a rate of growth several times as rapid as that of the population. While the total value of the mineral products lagged far behind the values of agriculture and of manufactures, the rate of increase was much more rapid. Two-thirds of the mineral wealth was obtained from the northern States, and especially in those sections where coal and iron were being mined. The most important mining States in 1900, in order of importance, were Pennsylvania, Ohio, Michigan, West Virginia, and Colorado.

258. Coal. — Coal had been used as a domestic fuel and to a limited extent in manufacturing since the beginning of the century, but in 1860 the per capita consumption amounted to only half a ton a year. Its more general use had to wait for improved means of transportation and handling, and especially for the new processes and appliances which created so great a demand for smelting purposes, for fuel of railroads and steamships, for producing gas, and for numerous other uses. Most of these were not perfected or in general use until after the Civil War. The coal-burning locomotive firebox was developed only shortly before 1860. Coal gas was first produced in Boston in 1821, but was not used on a large scale until the growth of manufactures crowded the population into large cities, wood being still used as fuel more generally than was coal throughout the country. After this date, however, the production and use of coal grew rapidly, from 14,333,922 short tons in 1860 to 71,481,570 in 1880 and 269,684,020 in 1900. By 1880 the United States turned out 21 per cent. of the world's production of coal, being surpassed only by Great Britain; by the end of the century we ranked first.

The coal deposits are far from equally distributed throughout the country, the greater part of the coal-producing area being found along the Appalachian mountain chain and in the states of Ohio, Indiana, and Illinois. In 1900 about 70 per cent. of all the coal mined was taken from the Appalachian field. Practically all of the coal mined was used at home, less than three per cent. being exported.

259. Petroleum.—Of immense importance both industrially and socially was the discovery of petroleum. Until its introduction the tallow or spermaceti candle had been the almost universal source of artificial light. The existence of oil had long been known in New York, Pennsylvania, and Ohio, and had been sold for medicinal purposes under the name of "Seneca oil," but the first well was not drilled until 1859. From 2000 barrels in that year valued at $29 a barrel the production rapidly increased to 3,000,000 barrels in 1862, when it sold as low as ten cents a barrel, owing to over production and the lack of a widespread demand. At first, the transportation facilities were wofully inadequate to market the crude petroleum, but improvements were gradually made in tank cars, etc. A great impetus was given by the building of pipe lines, of which the first local one was constructed in 1865; the first through line was built in 1875 to Pittsburgh, and in 1880 the first pipe line to the seaboard was begun. Production increased steadily to 26,286,123 barrels, worth $24,600,638. Vast quantities were exported to Europe and the Orient, the fourth rank in the exports of the United States being held by the new illuminant. In 1880 the total world production amounted to only 30,000,000 barrels, of which the United States contributed over five-sixths.

Improvements in methods of production and transportation, and especially the development of new uses for petroleum and its numerous derivatives, such as illuminating oil, lubricating oil, gasoline, naphtha, benzine, and paraffine, gave a great stimulus to the industry during the next twenty years. In 1900 the total world output was 149,000,000 barrels, Russia leading with an output of 76,000,000 and the United States taking second place with 64,000,000. New sources of supply were found in southern California and in Ohio and Indiana, as the older fields of New York and Pennsylvania began to show signs of exhaustion. Indeed the oil industry is constantly on the move as the old wells either give out or have their productivity reduced to an unprofitable point.

A new kind of cheap and clean fuel came into use when natural gas was discovered. Although its availability for heating and lighting had been known for a good many years, its use on a large scale dates from about 1870. In the gas belts it was used for manufacturing purposes as well as for domestic heating and lighting. Compared with coal, however, or even with petroleum, natural gas was of minor importance.

OPEN PIT IRON MINE

In the Lake Superior iron-ore regions, a steam shovel scoops up the ore from open pits, filling cars at the rate of almost one a minute. The ore is then carried by car to the neighboring shipping ports on the lake and dumped into bunkers, from which it slides down chutes into the hatches of the ore ships. Over 3000 tons an hour are loaded in this fashion. Owing to the ease and cheapness of the methods and the purity of the ore, the Lake Superior region is now producing about three fourths of the iron ore used in the United States.

260. Iron ore. — Next in importance to the fuel supplies of the United States rank its stores of iron ore. These exist in large quantity and are widely disseminated, though in the main they occupy three great fields. On the east the Appalachian field, which stretches from Newfoundland to central Alabama, contains large deposits of rather impure ore. The deposits of the Lake Superior region are extensive and of re-

markable purity, and are so situated that economical methods of mining and transportation to market are possible. In the Cordilleran district there are practically inexhaustible supplies of iron, but owing to the absence of coal suitable for smelting, the ore remains undeveloped except for local purposes.

For more than a hundred years Pennsylvania had been the leading producer, but about 1880 the iron ranges of the Lake Superior region began to be opened up, from which the ore could be easily extracted and cheaply shipped to market. Until this time ore was obtained from shaft mines, in which the veins were often thin and the ore of relatively poor grade. The deposits in the Lake Superior region on the other hand were not only extremely rich and pure, but they lay almost on the surface so that they could be dug out and transported by the application of improved labor-saving machinery. Consequently the red hematite ores from this district tended to displace the product from the Appalachian field: in 1880 they constituted 31.5 per cent of the ore mined and in 1902 they were 85.9 per cent.

Even more important in promoting the industry was the steadily increasing demand for iron and steel. Every new industry increased the need for these products, and a growing burden was placed upon the iron resources of the country. This is shown by the increase in the production of iron ore from 2,873,460 long tons in 1860 to 6,307,883 in 1880 and to 27,553,161 in 1900.

261. Copper. — Next after iron, copper ranks as the most necessary metal in the industrial arts. In primitive civilizations, as among the ancient Greeks or the North American Indians, it was especially valuable because it was easily worked. With the discovery of processes for smelting iron, copper lost its early importance, which it regained only as the result of the development of the electrical industries, especially after the invention of the telephone in 1870, the electric arc light in 1880, and similar devices. In 1860 the production of the United States was 16,128,000 pounds, which grew to

60,480,000 pounds in 1880. This was about one-fourth of the world's supply at this time, and already this country was the leading producer. The great expansion of the copper industry belongs, however, to the period after 1880, as a result both of new demands and of the discovery of new sources of supply. By 1900 the production of the United States had grown to 606,117,000 pounds, or ten times as much as in 1880. The pre-eminence of this country was now greater than ever, for it produced over half of the world's output and exported over half of the domestic production to other coutries.

Down to 1880 Michigan was the principal source of supply of copper, about five-sixths of the domestic output coming from there in that year. After this date, however, new mines were opened in Arizona and Montana, and still later in California and Utah. Improvements in the methods of refining. such as the electrolytic process, also made available deposits which previously had been thought unworkable.

262. Gold and silver. — Of far greater prominence, because of their use as money, though of subordinate importance in the industrial arts, are the so-called precious metals — gold and silver. During the war decade the supply of gold from California fell off, but the discovery of the Comstock lode in Nevada in 1859 helped to make good the deficiency. In 1877, the year of greatest production, the yield of this famous mine was $36,301,537, of which $22,000,000 was silver. The rush to Nevada after the discovery of the precious metals there was almost as great as to California a decade before: from 6857 in 1860, the population of the territory grew to 62,266 in 1880, as a result of which it was enabled to enter the Union as a State. In 1880 Mulhall estimated that America had contributed 50 per cent. of the world's stock of gold; the United States was then the greatest single producer of the precious metals, though followed closely by Australia. Beginning about 1893 rich veins were discovered in Colorado, especially in the famous Cripple Creek, Leadville, and Clear Creek districts, and production again advanced rapidly. The

maximum output of the older placer mining had been reached in 1866 with a value of $53,500,000. As these bearings became exhausted the output declined and the long-standing record was not broken until 1897. The use of dynamite and the rock drill were important in developing the new type of mining. In 1900 the production of gold in the United States was $78,159,000.

Silver mining has been conducted on a large scale in the United States only since the Civil War, but after the stores of this metal were discovered in the Western states the industry made rapid and uninterrupted progress. From $156,000 in 1860 the output increased to over $23,000,000 in 1871. New metallurgical processes about this time permitted the exploitation of low-grade ores, and in spite of falling prices the production steadily increased. The larger output coincided with the cessation of monetary demand for silver on the part of most of the European nations, and the price of silver fell steadily. The commercial value of the silver output in the United States in 1902 was only $29,000,000; this was 180 times as much as the value of the 1860 production, but the quantity was 400 times as great.

263. Other metals and minerals. — While our industrial development is based chiefly upon the fuels and iron ore there arises also a demand for other raw materials in manufacturing special products. The remaining mineral products of broad industrial interest may be classified in three groups: metals, chemical raw materials, and structural materials.

Among the metals of commercial importance not yet mentioned may be enumerated aluminum, lead, zinc, and quicksilver. The production of aluminum first became of importance in the decade 1880–1890, when several great inventions were made. From an output of a few hundred pounds, at a price of five to ten dollars a pound in 1880, the production increased to 7,150,000 pounds in 1900, worth less than twenty cents a pound. Lead has a long industrial history, for even in Roman times it was used for many of its present purposes.

At the time of the Civil War the United States was producing about 20,000 tons, most of which came from Illinois, Wisconsin, Iowa, and Missouri. This production was largely increased in connection with the expanding silver mining, with which lead is often found associated. It is largely a by-product, especially of silver and zinc. Of this last-named metal the United States was one of the leading producers during this period, and greatly increased its output. Quicksilver was produced in California in considerable quantities, about one-fifth of the world's supply in 1900 coming from this country.

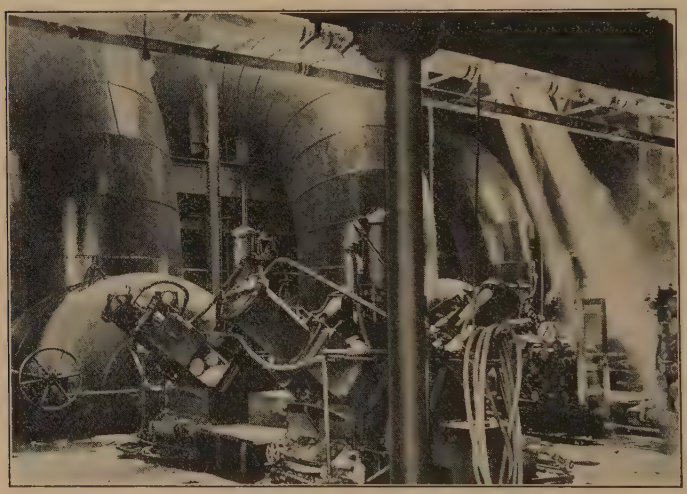
Under the head of chemical raw materials may be mentioned sulphur, salt, lime, potash, and phosphates. With the exception of potash the United States is well supplied with these materials, and this period saw a rapid development of their production.

The structural materials comprise the clay products, such as brick, tile, etc.; cementing materials; and building stones. With all of these the United States is well supplied, and the stores are well distributed. The production of all of them, on any large scale, began during this period, though owing to their weight and size all but the most valuable varieties were restricted to local markets.

264. The forest. — The forests of the United States cover an area of about 700,000,000 acres, or more than 35 per cent. of the area of the country. Of these by far the greater part is found in the section east of the Mississippi, which originally was a vast continuous forest. In the northern States there stretched the great white pine forest, from which most of our lumber has come, from colonial days to the present; south of this in a broad belt lies the southern pine forest, whose most important tree is the yellow pine. In the Mississippi valley are found the hardwood forests of oaks, hickories, ashes, gums, etc. West of the Mississippi stretches a forestless, often treeless, area of millions of acres; with the Rocky Mountains begins again the coniferous interior forest, and still farther

west the Pacific coast forest. In this interior section the chief lack has always been water rather than wood.

The early settlers drew upon the forests for food, fuel, and shelter. And yet the dense woods of the Atlantic coast, which had to be cleared before crops could be raised, and which often concealed hostile Indians and animals, were regarded



GRINDING ROOM IN A PULP MILL

The United States uses annually about two million cords of wood in the manufacture of paper, an area half as large as Rhode Island being stripped of timber to supply the pulp mills. One of the grinders in this illustration converts about seven cords of wood into pulp daily. Although the machines are operated wholly by cold waterpower, the grinding is so violent that they are wreathed in steam.

rather as an obstacle than a blessing. Vast areas were ruthlessly burned down and the land denuded of its forest growth. This lavish waste of one of our most important natural resources persisted almost down to the Civil War. After that time, however, the demand for lumber for railroad building and other purposes greatly increased. Down to 1860 the northeastern States furnished the greatest part of the supply (55 per cent. in 1850), but with the development of the middle

west larger drafts began to be made upon the forest resources of Michigan, Wisconsin, and other Lake States; between 1860 and 1880 this group ranked first as a source of supply. But the industry had already begun to move into the southern pine forests, and by the end of the century the southern States ranked first as producers of lumber.

265. **Forest policy.** — In the census of 1870 for the first time a canvass was made of our forest resources, and the relatively small area of forest became known. Increasing interest began to be manifested, and laws for the encouragement of timber planting were passed by most of the western States in the seventies. Congress in 1873 joined in this kind of legislation by the passage of the timber culture act, granting to settlers 160 acres of treeless land on condition that they plant and cultivate a certain number of forest trees; but the act was ineffective. The federal government began its forest work in 1876 by the establishment of a forest agency in the Department of Agriculture; the Division of Forestry was created in 1881, but accomplished little because of inadequate appropriations. Owing to abuses, the timber culture act was repealed in 1891, while the State laws remained for the most part dead letters. The country had clearly not yet awakened to the need of a constructive and far-sighted forest policy. In one respect only had a promising beginning been made in an important direction: this was the establishment of forest reserves, which was inaugurated in 1891, and of national parks. The Yellowstone National Park, which is one of the greatest, was created in 1872; the Yosemite and Sequoia were established in 1890.

The progress of the manufactures of lumber may be seen from the following table:

Year	Woodland and Forest in Farms (acres)	Number of Establishments (thousands)	Capital (millions of dollars)	Number of Employes (thousands)	Value of Products (millions of dollars)
1860	159,310,177[1]	20.7	74.5	75.8	95.7
1880	190,255,744	25.7	181.2	148.0	233.3
1900	.....	47.1	946.1	546.9	1,030.9

[1] 1870.

266. Animal life. — The principal animals, as also the vegetable products, which do not constitute the original resources of the country but are rather the results of man's efforts, have been treated elsewhere under the appropriate headings. In this connection will be noted simply the value of the native fauna. The animal life indigenous to North America had enormous economic significance to the aborigines, less to the colonists, and has scarcely any to us to-day. Of all the fauna of native origin the turkey is the only one which has been domesticated. To the Indian the wild game, such as deer, buffalo, mountain sheep, etc., were of greatest economic importance, since they furnished him with food, and the materials for clothing, shelter, weapons, and other necessaries. To the early colonist and fur trader the fur-bearing animals, such as the beaver, squirrel, mink, sable, badger, fox, and weasel, were more valuable. The presence of quantities of game in the neighboring forests was moreover of considerable importance to the pioneer, as he was thus able to supply his table and vary his diet with a minimum expenditure of effort. Quantities of edible wild fowl too passed overhead every year, as pigeons, turkeys, prairie chickens, ducks, geese, quail, etc. By the end of the century these had been practically exterminated, or a small remnant only survived under the protection of strict game laws.

267. The fisheries. — Of far greater importance from an economic standpoint were the fishes, the supply of which was not so easily reduced. The salmon of the North Pacific coast

stood easily first among these; followed by the cod, mackerel, herring, and shad of the Atlantic coast; and white fish, lake herring, and sturgeon of the Great Lakes. Oysters, gathered by the Indians in immense numbers, still formed the basis of a lucrative industry on the middle Atlantic coast. The exploitation of all these native resources of the United States proceeded recklessly and ruthlessly, and not until near the end of the century was any effort made to conserve and maintain our native animal and vegetable wealth.

The United States Fish Commission was established in 1871, and the following year began the artificial propagation of fish, a work which constantly expanded. It was evident that man could not depend upon the bounty of nature alone in this industry, but must himself provide fish culture as inevitably as agriculture.

268. Water power. — In connection with the extractive industries should be mentioned the amount of water power available for industrial use in the United States. In colonial days this was of chief importance and determined the location of many a town. With the invention of the steam engine and the use of coal as a motive power, industry became less dependent upon water power, but with the rise of electrical appliances and the harnessing of our streams and falls for their service, the value of this item in our national wealth began to be estimated more highly. "It is probable," says Shaler, writing near the end of the nineteenth century, "that, measured in horse power or by manufactured products, the energy derived from the streams of this country is already more valuable than those of all other lands put together."

The most valuable water powers are found east of the Mississippi River and west of the Cordilleran chain. Even in the case of the best water power there are, however, in spite of its cheapness, certain drawbacks: it must be applied where it is found, except as it is used to develop electric power, and is subject often to serious seasonal limitations. The energy which is obtained from coal, on the other hand, may be devel-

oped where it is needed, at any time and to any amount. On this account the presence of coal proved a more important factor than water power in determining the concentration of the population and the regional distribution of industries.

Down to about 1860 water power enjoyed an unquestioned supremacy, and as late as 1870 about as much mechanical power was derived from it as from steam. By 1900 however, only 15 per cent. of the power used in manufactures was from water wheels, while 77 per cent. was from steam engines. During the decade 1890–1900 there was a considerable expansion in the power generated by water wheels, due to the increasing use of electricity; but the full development of this form of power belongs to the next period.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XX

The extractive industries were dealt with during this period as a problem in the rapid exploitation of the natural resources. The normal progress of manufactures created a steadily increasing demand for the products of field and mine and forest, which had to be met. But the owners of the natural stores of mineral and forest wealth wished to realize upon their possessions as speedily as possible, sometimes, it seemed, with little regard for existing demand. Serious problems arose out of this situation.

1. Should the forests or fisheries ever be exhausted if properly managed? Is this true of mines? Of soils? [A. Marshall, Princ. of Econ. (4th ed.), 244–7.]

2. Is there any connection between the presence of forests and the amount of rain-fall? [H. Gannett, in Bull. of Amer. Geog. Soc., July, 1901.]

3. "The world could dispense with the precious metals more easily than it could with coal and iron"; do you agree with this?

4. Compare the known coal supply of the United States with that of other industrial nations; what conclusions could be drawn with respect to the question of industrial supremacy? [Monthly Summary of Commerce and Finance, Treas. Dept., Sept., 1902.]

5. Why has the Cordilleran system been called "the curse of the continent?" Is it? [N. S. Shaler, in J. Winsor's Narrative and Critical History of Amer., IV, v.]

6. What effect did the change from water power to steam have upon the localization of industries? [S. Trotter, Geography of Commerce, 127–130.]

7. Describe some of the improvements in the utilization of coal alluded to in Sec. 258.

8. What were the new uses for copper which led to so great an increase in demand after 1880?

9. Describe placer mining of gold.

10. Name some of the uses to which aluminum was being put; lead; zinc; quicksilver.

11. Explain the shifting of the center of the lumber industry from the Lake region to the South.

12. Under the general property tax of most of the States, the standing timber is taxed each year according to its value. Do you think this had any effect upon the cutting of the timber?

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CHAPTER XXI

TRANSPORTATION AND COMMUNICATION

269. Growth of the railway system. — Hand in hand with the increase in the production of material wealth has proceeded the growth of the means of transportation and distribution. Cheap and rapid systems of transportation have been a necessity over the enormous distances of the American continent, and the railroad has therefore attained an importance greater here than in any other country in the world. In no country has the growth of the railway so directly affected the development of the staple industries. "For years the history of the railroads was the history of the country."

The means of transportation and communication were developed upon an unprecedented scale during the twenty years after the Civil War. Railroad building was checked during the war, but only temporarily, and the decade saw the number of miles almost doubled — from 30,635 in 1860 to 52,914 in 1870. The years 1868–72 in particular were years of extraordinarily rapid growth, especially for the upper Mississippi valley. Railroad extension was again interrupted by the crisis of 1873, which was largely caused by the too rapid railway construction and the intense speculation accompanying it, but by 1879 it began to revive, and the end of the decade saw the number of miles again almost doubled; by 1880 there were 93,296 miles of railroad in the United States. This increase of almost 75 per cent. in ten years far outran the growth in population, which was only 30 per cent. in the same period. Most of the new construction took place in the northwestern States and afforded an outlet for the grain supplies which these States were beginning to pour into the world's markets; considerable was built also in the South and Southwest. The

building of the railways, too, both facilitated and was demanded by the enormous immigration which now began to fill up our western territory. During this same decade the population in the Northwest increased 44 per cent. and that of the Pacific States 114 per cent.

The decade 1880–1890 witnessed the greatest expansion of the railway net that had yet been seen: from 93,296 miles in 1880 the railway mileage grew to 163,597 in 1890, a practical doubling in ten years. The construction was carried on chiefly in the central and western States, where the agricultural and mining wealth was being developed, and where new transportation facilities were most needed. The crisis of 1884 was brought about by the too rapid and speculative railroad building of the years immediately preceding. By 1890 the country seemed to have been pretty well supplied with railway facilities, and after that time construction was less rapid. The crisis of 1893 and the resulting depression also retarded railway growth and forced the railways not merely to curtail new building, but to practise the most rigid economies. Nevertheless, by 1900 the railroad net contained 193,345 miles.

270. Character of the American railroad. — The nature of the traffic carried by the American railroads was already impressing upon them certain characteristics which differentiated them greatly from European railroads. Over 60 per cent. of the freight tonnage in 1880 consisted of heavy, bulky articles, such as coal, grain (these two alone making up 45 per cent. of all freight), iron, lumber, stone, and petroleum. It is evident that heavier rails, bridges, and cars were needed than where the traffic consists of light general merchandise and manufactures. Even more necessary before such goods could be moved profitably was the establishment of low rates. Consequently, the history of American railway development since the Civil War has been in both these directions. Probably no other single influence has been so effective in reducing the cost of transportation and improving the general condition

of the roads as the substitution of steel for iron rails. A few imported steel rails had been laid as early as 1864, but their manufacture in the United States did not begin until 1867. Their use increased slowly, but by 1877 the annual production of steel rails had passed that of iron rails, and by 1880 was exactly double. At the same time there was a steady reduction in price, from $166 (currency) per ton in 1867 to $48.25 in 1879. The use of steel in the construction of locomotives and cars, as well as the enhanced strength of the rails, led to a great increase in their size, weight, and capacity, and at the same time the permanent way was improved by reduction of grades, better alignment of track, improved drainage and ballasting, and better bridges.

271. The public service of the railroads: freight traffic. — The freight service of the railroads, whether regarded from the standpoint of earnings or of public service, was much more important in the United States than the passenger service; in 1900 the earnings from freight traffic were almost three times as much as from passengers, while there were forty times as many freight cars as passenger cars. The growth of the freight business, too, was more rapid than that of any other branch of service, having more than trebled in the past twenty years. More than half of the tonnage consisted of products of the mines — coal, ore, stone, etc. — while about a quarter more was made up of lumber, grain, live stock, and other heavy articles shipped in large quantities. Railroads were a necessity for moving these goods from the points of production to the markets, and the chief object in railroad building was to afford these facilities as speedily and cheaply as possible.

As the country developed, the original, hastily constructed lines had to be replaced with better and more expensive ones. The roadbed and track of the best lines have within the past twenty-five years been relaid, curves straightened, grades reduced, old wooden or iron bridges replaced by strong steel or stone ones, and heavier rails laid, millions of dollars having been spent by the railroads in these improvements. These

changes were necessitated by the introduction of larger and heavier cars and locomotives, adapted to the heavy traffic peculiar to the United States. About 1870 the average freight box-car in the United States had a capacity ranging from 16,000 to 24,000 pounds; in 1881 the 40,000 pound car was introduced; by 1900 pressed steel cars with a capacity of 100,000 pounds were in common use. The typical American car was probably the 60,000 pound car. The locomotive showed the same evolution as regards both weight and strength: locomotives weighing over 100 tons and capable of drawing train loads of 2000 to 2500 tons were found on the best equipped lines. As the capacity of the railroads to handle the increasing traffic grew, and also the size of the units handled, the terminal facilities for handling freight, especially coal, ore, and grain, were wonderfully developed. Electric cranes, elevators, and other labor-saving devices for handling these commodities in bulk were being introduced at stations to an increasing extent, and corresponding economies in loading and unloading the cars were being effected.

272. The passenger service. — While the competition of rival railroads for freight traffic was resulting in the steady reduction of freight rates, in the passenger service competition led rather to improvements in accommodations and speed. By 1900 the passenger on an American railroad could probably travel more luxuriously than in any other country in the world. The use of vestibuled trains, better constructed cars, and improved methods of heating and lighting contributed greatly to the comfort of traveling. At the same time its safety was increased for the public by the introduction of the block signal system, and of automatic train-brakes and couplers; although these appliances dated only from the eighties, almost all passenger cars were equipped with them. In spite of these precautions, however, the loss of life on American railroads was appalling: in 1900 there were 11,711 persons killed and 120,929 injured in railroad accidents. The loss of life and limb was greatest among the employees,

especially the trainmen, among whom 1 in every 137 was killed and 1 in every 9 was injured. Chiefly responsible for these accidents were the lack of due precautions in guarding the right of way and giving due notice of the approach of trains, the single tracks and grade crossings, the insufficient labor force and the long hours of work, together with a certain recklessness in the running of trains. This showing was unparalleled anywhere else in the world.

DRIVING THE LAST SPIKE

The Union Pacific and the Central Pacific railroads were joined at Promontory Point, near Ogden, Utah, on May 10, 1869. When the "last spike," made of California gold, was driven in, the news was telegraphed to every part of the country and was received with general rejoicing. The building of this first transcontinental railroad was a striking evidence of the irrepressible energy of the people of the United States. It was of incalculable value in developing the West and uniting it with the East.

273. The transcontinental railroads. — The idea of a transcontinental railroad had been advocated as early as 1834, and the gold discoveries in California had revived the demand for

it, but nothing tangible was done in this direction until 1862. Then the political and military necessity of uniting the Pacific States with the East, and of securing better means of communication with the Southwest, induced Congress to aid several companies to build lines across the western plains. The Union Pacific railroad, which constructed its line from Omaha to Ogden, received 12,000,000 acres of the public lands, and the Central Pacific, which built eastward from Sacramento to connect with the Union Pacific, received 8,000,000 acres. The Northern Pacific was granted over 10,000,000 acres. Additional grants to the Kansas Pacific and other corporations brought up the total to 33,000,000 acres. In addition to these grants of land three of the companies mentioned received large loans of money from the Federal government. During the twenty-one years between 1850 and 1871, at which time land-grants were discontinued, more than 159,000,000 acres were placed at the disposal of railroad corporations by the Federal government and 55,000,000 acres by the State Governments, to which the land was previously given for this purpose by the Federal government. Of course not all the land thus granted was actually obtained by the railroads, as many of them did not fulfill the conditions of the grants by actual construction, but by 1880 about 43,000,000 acres had been certified to the land-grant roads. In addition to the transcontinental lines, other roads were built running north and south, and the country was rapidly being united by great trunk lines and a network of shorter lines.

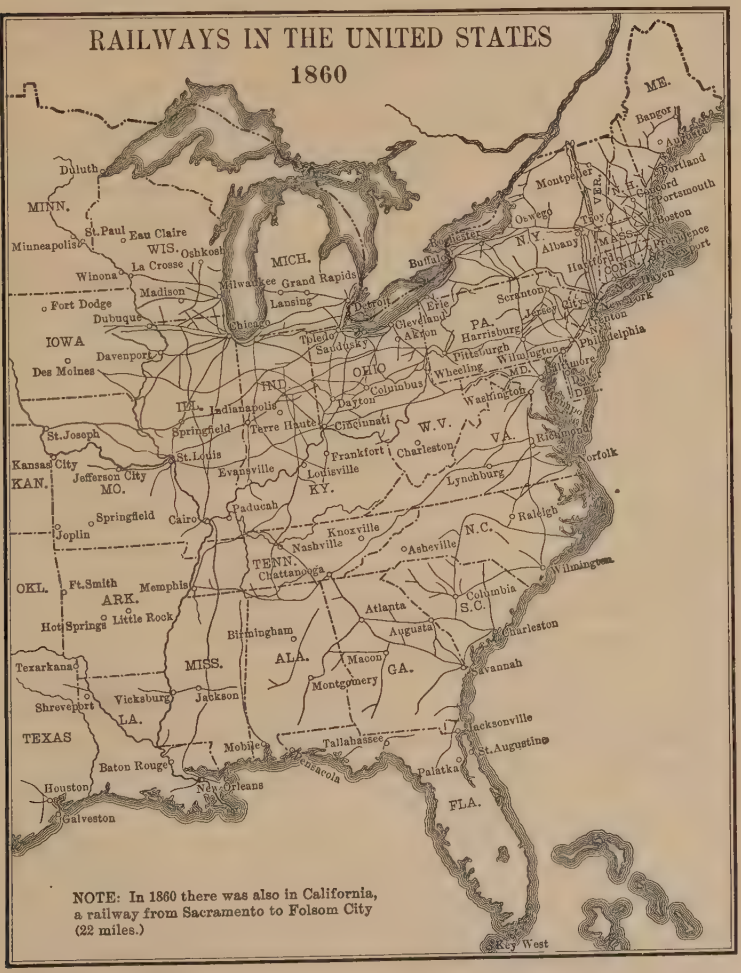
274. Construction and finance. — The paramount problem of this period was the rapid extension of railway facilities, and this was well met. But more important than the mere physical growth and improvement of the railroads were the various problems to which they gave rise. Serious abuses developed in the construction and financing of the early roads. It was a pioneer stage of development, in which freedom of competition and absence of government regulation, together with a low business morality, permitted proceedings which to-day would

be impossible. Some of the most serious abuses may be mentioned. In the building of the Union Pacific railroad a construction company was organized which took over the contracts to build the road at so much a mile. On the surface such a company was legitimate and useful, as it would distribute the risks in a rather hazardous venture according to the principle of limited liability. But in effect it opened the way to a scandal of national proportions. The stockholders of the Credit Mobilier, as the construction company was named, were also leading stockholders and directors in the Union Pacific, and in their latter capacity they voted themselves in their former capacity unduly profitable contracts, thus defrauding both the government and innocent investors in the railroad. The practice was by no means confined to this single road.

Irregular financial methods were also exemplified by the wrecking of the Erie railroad by Jay Gould and his associates, a particularly deplorable feature of which was the corruption of the state judiciary. The all but universal practice of granting discriminatory rates to favored shippers should also be mentioned. The Standard Oil Company was the chief beneficiary from this abuse, as it was the most unscrupulous in using the device to crush out its competitors. It was an exceptional period in the history of transportation and was marked by great abuses as well as by great achievements. The public was as yet uninformed, public sentiment was not keenly alive to business delinquencies, and adequate methods of management and control of the growing railroad corporations had yet to be developed. Government agencies for regulating and securing publicity were practically unknown, and among the railroads themselves there existed considerable and at times severe competition, which led to the use of questionable devices.

275. Railroad combination. — One method of escape from the evils of competition was that of combination, and the first phase of this to attract public attention was the consolidation

of disconnected but continuous lines. As long as the traffic was local the lines remained short and unconnected; not until



after 1850 was a length of 500 miles attained by any one line. In the decade 1850–60 many consolidations of short links into one connected road took place, but the larger combinations of

connecting roads into great trunk lines did not occur until after the war. Then the growth of the western grain traffic and other long-distance business made through shipments very desirable, and under the leadership of such skillful railroad managers as Thomas A. Scott and Cornelius Vanderbilt an era of consolidation took place. By 1880 the great trunk lines as they exist to-day had already been formed.

276. Railroad competition and pooling. — The formation of great trunk lines, while reducing the number of competitors, increased the intensity of competition, especially for the through traffic between the Central West and the Atlantic seaboard. The main lines that were bidding for western business were the New York Central, Pennsylvania, Erie, and Baltimore and Ohio, but their rivalry did not become serious until after 1869, in which year the New York Central and Pennsylvania secured through connections to Chicago. A few years later Chicago was reached by the Erie, Baltimore and Ohio, and the Grand Trunk, and a series of ruinous rate wars was initiated by the efforts of the competing roads to divert as much of their rivals' business to themselves as possible. It was easier to steal existing business from a competitor than to develop new traffic. As consolidation was out of the question, agreements were made which usually took the form of pools, according to which the whole traffic or earnings were divided among the erstwhile competitors on some prearranged basis. Pooling, which began in 1870, was the leading characteristic of railroad development during the decade following.

The Interstate Commerce Law of 1887 forbade "any contract, agreement, or combination . . . for the pooling of freights of different competing railroads," and thereby made illegal all the existing pools between the railroads. To secure co-operation, the various traffic associations simply reorganized, without the pooling clause, "for the purpose of facilitating the transaction and exchange of business with each other." These associations, while technically avoiding pooling, regu-

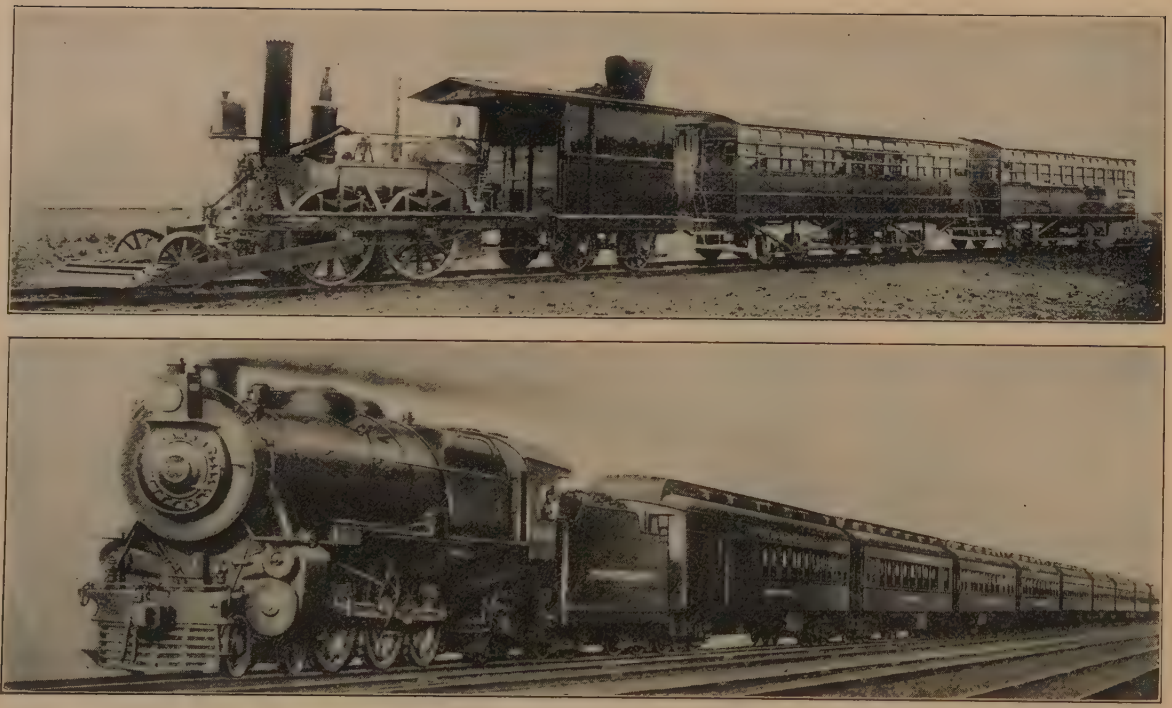
lated rates and punished offending members. In 1897 and 1898 the Supreme Court decided in two important cases — those against the Trans-Missouri Freight Association and the Joint Traffic Association — that rate agreements violated the anti-trust law of 1890, which prohibited "every contract, combination in the form of a trust or otherwise, or conspiracy, in restraint of trade or commerce," and that they were therefore illegal. As pools and rate agreements were now both forbidden, the railways were compelled to devise a new method

TRAIN OF 1870

The short, squat locomotive and the flimsy wooden cars contrast strangely with a modern train.

of regulating their relations or return to unrestricted competition. The first and most noticeable result was the consolidation of hitherto independent and competing lines and the absorption of the smaller roads by the large systems. During the eighties and to a still greater extent during the nineties there occurred the combination of hitherto independent lines into vast systems containing thousands of miles of line. Railroad systems with more than 1000 miles each now came to constitute over half of the total railroad mileage of the country.

277. **Rates.** — The four decades after the Civil War saw a progressive reduction in the charges for transportation services. Passenger fares were not reduced so rapidly as freight rates, but competition took the form rather of improving the service. The causal connection between railroad rates and traffic is one of interaction. As the business grew it became possible for the railroads to reduce rates, and the lower charges in turn



ENGINE AND TRAIN, 1831 AND 1922

The locomotive "John Bull," in the upper picture, was built in England and put in service on the Pennsylvania railroad in 1831. In 1893 it hauled the train, shown above, to Chicago. Contrast with it the modern high-speed compound passenger engine and coaches in the lower picture. This is the Broadway Limited which runs from New York to Chicago in twenty-four hours.

stimulated new traffic. Transportation is a business which yields "increasing returns": after the road is built and equipped, its expenses do not grow proportionately with an increase in traffic; as the business develops, it is possible at the same rates to secure constantly increasing returns in profits, or the dividends may remain at the same level and charges be reduced. As a matter of fact, both results have been secured in the United States, although the increasing rate of profits has been largely concealed by the universal practice of watering the stock. The decline in rates is more obvious and striking. This has been brought about by competition between railways themselves, by the competition of the railways with water routes, and finally by the competition between various productive centers in different parts of the country. In 1871 the average rate per passenger mile was 2.632 cents (gold), and in 1881 it was 2.446 cents. Freight rates declined more rapidly, especially for the through traffic; this was brought about largely by the various improvements in the equipment and management of railroads which have been described. The average rate per ton mile was 1.927 cents (gold) in 1867; ten years later it was 1.286 cents, a reduction of over one third. The effect of these low rates was soon seen in the development of the West, the shifting of cereal production entirely from New England and largely from the North Atlantic States to the Central and Northwestern States, and the diversion of traffic from the lake and canal routes to the railroads. As the railroads began to carry more of the traffic, the cities of Boston, Philadelphia, and Baltimore began to clamor for a larger share than they had been able to secure while the Erie Canal and the Hudson River were the chief highways of commerce. Accordingly, a system of "differential" rates was established, which made the charges to those cities somewhat less than that to New York, and placed them on an equality in bidding for the export trade.

The average revenue per ton per mile received by the rail-

roads in the United States for freight decreased from 1.24 cents in 1882 to .73 in 1900. Passenger fares were not reduced to the same extent, as lower fares do not stimulate travel in the same degree that lower freight rates stimulate freight traffic; the average revenue per passenger mile was 2.00 cents in 1900, as against 2.42 cents in 1883. Freight rates on the average were considerably lower and passenger fares somewhat higher than those in European countries. The reduction in freight rates is best brought out by comparing the average annual rates on wheat by lake, canal, and rail from Chicago to New York, which are briefly shown in the following table:

AVERAGE ANNUAL RATES ON WHEAT FROM CHICAGO TO NEW YORK

Year	WHEAT (average rates per bushel)		
	By Lake and Canal	By Lake and Rail	By All Rail
	Cents	*Cents*	*Cents*
1868	22.8	29.0	42.6
1880	12.3	15.7	19.9
1890	5.8	8.5	14.3
1900	4.4	5.1	9.9

278. Discriminations. — Few complaints were made by shippers on the ground that rates were absolutely high in themselves. On the other hand, no charge against the railroads was so constantly reiterated as the practice of granting discriminating rates — discriminations between persons, between localities, and between different classes of goods. Of these the least defensible were personal discriminations. While lower rates to large shippers for car-load lots were not in themselves objectionable, special favors were often granted to individuals or corporations in order to obtain their business by diverting it from rival roads. The Standard Oil Company and other trusts owed their success in large measure to their

ability to secure such concessions. Discriminations were granted by means of secret rates and rebates; by paying rentals for private cars; by commissions for obtaining freight; by under-billing and under-classification; by excessive allowances for the use of terminals owned by shippers, etc. Although these were forbidden by the Interstate Commerce Act of 1887, the receivers of the Baltimore and Ohio Railroad testified before the Industrial Commission in 1898 that more than 50 per cent. of the traffic, at least on certain lines, was carried at discriminatory rates.

Discriminations between places, while objectionable, are not secret and therefore less reprehensible than personal discriminations. A conspicuous class of these was forbidden in 1887 under the "long and short haul" clause of the Interstate Commerce Act, which prohibited a greater charge for a short than for a long haul over the same line and in the same direction under substantially similar conditions. The question of discrimination between different classes of goods involves the whole problem of freight classification, and must be passed over here with a simple reference.

279. State regulation and control. — In the United States the States have the right to control commerce carried on within their boundaries, while the power to regulate interstate commerce is vested in Congress. Until 1870 little use was made by the State governments of this power; the chief aim of the western States was to obtain railroad facilities and there was no disposition to impose restrictions on new roads; competition was relied upon to protect the public from abuses. In the early seventies, however, partly as a result of high rates and gross discriminations on the part of the railways, and partly as a result of the lower prices resulting from currency contraction and the crisis of 1873, the farmers of the western States demanded the regulation of railway rates. Illinois began the movement in 1870 by the establishment of a State commission with powers to prescribe maximum rates, to prohibit discrimination, and to regulate the railroads. This

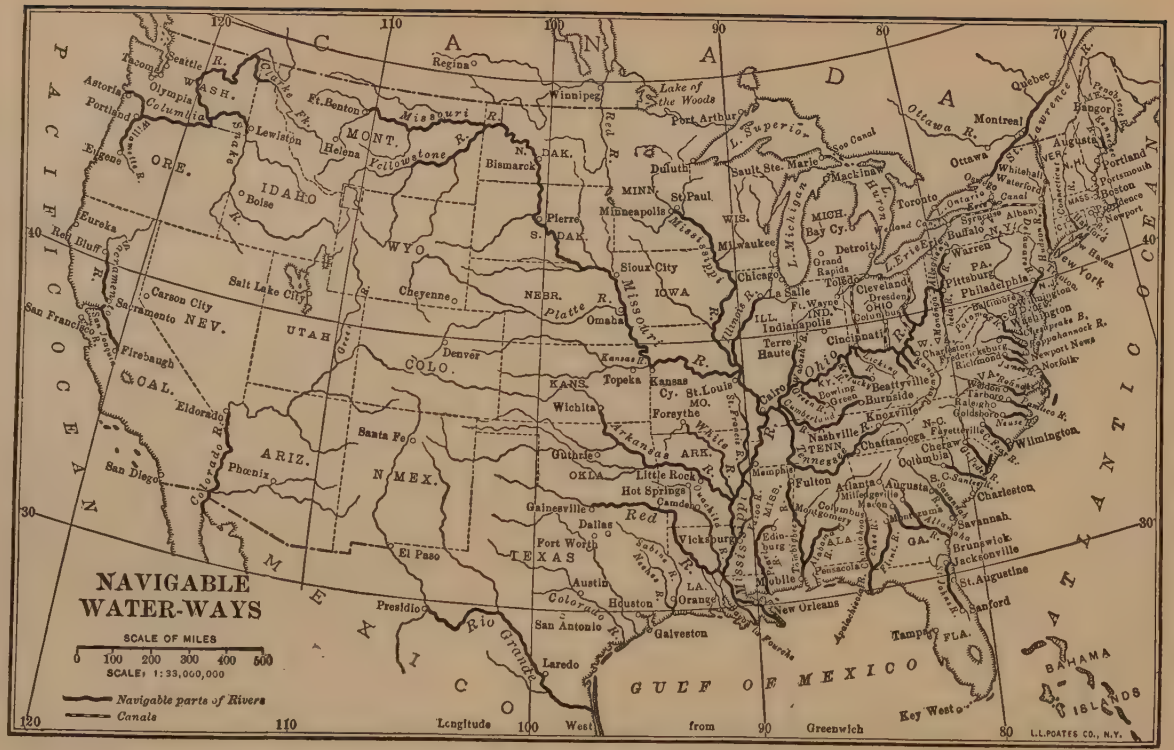
example was followed by other States in the West and South — Iowa, Wisconsin, Minnesota, Georgia, California, etc. The so-called "granger" legislation of this period was extreme and was either repealed or modified in a few years, but it was notable as the first effective demand of the shippers that the railroads should be treated as public service corporations, and not as mere private enterprises for the enriching of their promoters or owners. To the farmers of the West adequate transportation facilities and fair rates were an essential condition of prosperity, and these they endeavored to obtain by the means under their control.

280. Federal regulation of rates. — Federal legislation on the subject of railroads dates back to 1866, but no serious attempt at regulation was made until the passage of the Interstate Commerce Act of 1887. This prohibited discrimination, pooling, a greater charge for a short than for a long haul, required publicity of rates, and provided for a commission of five persons, to whom should be entrusted the investigation of alleged violations of the act. The commission sat as a tribunal to hear complaints and render decisions upon cases brought before it; the enforcement of its decisions was secured through the courts, to which the railroads could appeal from the commission. According to the original act the findings of the commission were to be final as regards matters of fact, but in 1889 the Supreme Court decided that new evidence could be introduced on appeal, and thereby, by taking up cases *de novo*, greatly lessened the authority of the commission. It likewise modified the interpretation of other sections of the act, so as to deprive the commission of much of its original power.

281. Inland waterways. — The United States is wonderfully provided by nature with a system of long and navigable rivers. The Mississippi River with its tributaries drains over 1,000,000 square miles of territory in the very heart of the most fertile region of the country, and cities more than 1000 miles inland have direct water communication with the sea-

board. Altogether it is estimated that there are 18,000 miles of navigable rivers in the United States while the shore line of the Great Lakes extends for at least 1500 miles more. In spite of this wonderful natural system of internal waterways, there was a steady diversion of traffic from them to the railroads. After the Civil War it was found that the traffic which had previously gone down the Mississippi River found a quicker and less circuitous route to market over the railroads or by the lake route. As railroads were extended to river points, they gradually encroached upon the steamboat traffic, which reached high-water mark in 1879 when the jetties were opened to commerce. After that date it steadily declined. The receipts by water at New Orleans of western produce — flour, pork, and lard — were only just sufficient for domestic consumption, while no wheat at all was received. Cotton formed the staple of the Mississippi River traffic, and even this fell off as the years went by. The packet business, once of great importance on the Mississippi, Ohio, Tennessee, and other rivers, declined to small proportions, and by the end of the century, instead of general merchandise, the principal commodities transported were coal, sand, stone, lumber and wood.

282. Canals. — The canals suffered even more than the rivers from the competition of the railroads. Although by 1880, according to the census report of that year, over 4,460 miles of canals had been built in the United States at a cost of $214,000,000, about 2000 miles had been abandoned and the traffic over the remainder was declining. The Erie Canal was the only artificial waterway which, after the Civil War, still carried any considerable amount of traffic; as late as 1868 practically all of the grain arriving at New York City came by way of the canals. After 1873, however, the canal traffic began to decline rapidly. In 1876 the New York railroads carried more than three times as much tonnage as the canals and more than half of all the grain received at New York City. The diversion of traffic to the railroads became so



NAVIGABLE WATER-WAYS

The heavy lines show the navigable water-ways of the United States, in which the water is three feet deep or over. The length of these is some 18,000 miles.

RAILWAYS IN THE UNITED STATES

1870-80

Blue=1870

Red=Additions 1870-1880

L.L.POATES ENGR'G CO., N.Y.

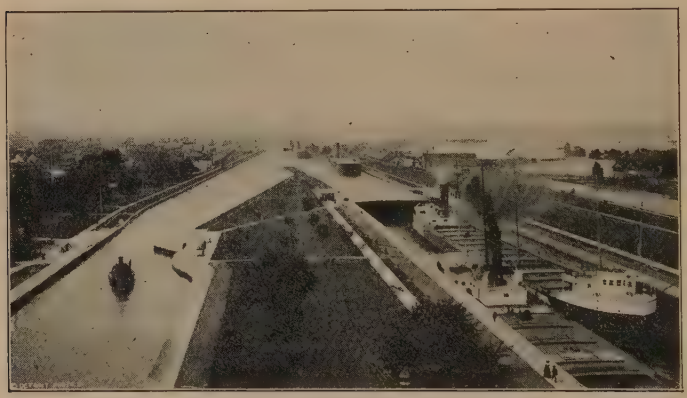
great that in 1882 the canal tolls were abolished, but this was not sufficient to check the decline in the canal traffic; this fell to 12 per cent. of the entire freight movement across New York State in 1890 and to 5 per cent. in 1900. Partly responsible for this decline was the absolute decrease in the amount of lumber and forest products carried across the State, which had generally gone by the slower route; but more important was the lack of improvements in equipment and facilities. The growing trade in grain and iron was diverted almost completely to the railroads, which meanwhile had made extensive improvements.

283. Lake and coastwise transportation. — While the river and canal traffic was falling off that of the Great Lakes was increasing. The growth of commerce can best be measured by noting the amount of freight passing through the Sault Ste. Marie Canal,[1] which may properly be considered as a link in this chain of lakes; this increased from 403,657 tons in 1860 to 1,734,490 in 1880 and to 8,454,000 in 1900. Most of the traffic on the Great Lakes consisted of coal, iron ore, or lumber — all of which were being rapidly exploited — and was carried generally as through freight from one end of the system to the other. Accompanying the growth in traffic there went on an increase in the size of the vessels and a steady substitution of steam for sails as a motive power. In 1862 the sailing tonnage was more than double the steam tonnage, but by 1882 the two were equal; in 1886 there were only 6 steel vessels on the Great Lakes, but by 1899 there were 296. Almost half of the entire tonnage of the country, exclusive of the fisheries, was on the lakes.

Several causes contributed to the very great increase in the shipping of the Great Lakes. The proximity of the lake ports to important areas of production, as of grain, iron, copper, lumber, coal, and similar products, made them the natural highway of commerce for the Northwest. "Several factors

[1] Statistics covering the movement of freight upon the whole lake systems were not collected until 1889.

distinguish the commerce of the Great Lakes from all other water-borne traffic in which American vessels are engaged. . . . In the first place, the carrying trade of the Great Lakes not only embraces, almost exclusively, raw material, but is made up principally of a limited number of commodities. Secondly, it is to a great extent a through traffic — the number and volume of cargoes transported from a lower to an upper Lake port, so called, or *vice versa,* greatly exceed the short coastwise hauls. Coal, both anthracite and bituminous, is



THE LOCKS AT SAULT STE. MARIE, MICH.

On the right is the Poe lock, the largest in the world when built, 800 feet in length, 100 feet wide, and admitting vessels drawing 20 feet of water. Vessels with a tonnage of over 68,000,000 passed through this canal in 1921, or about five times the tonnage passing through the Suez Canal. This is the best single index of the traffic on the Great Lakes, as the canal is an indispensable link in this chain of natural waterways, and therefore of great economic value.

shipped from the various ports on the south shore of Lake Erie to ports on Lakes Superior and Michigan, while flour and grain, iron ore, copper, and lumber make the trip from Lake Superior and Lake Michigan ports to unloading docks on Lake Erie."

The coastwise trade was restricted to vessels flying the American flag, and was therefore not exposed to the competi-

tion of foreign owned vessels, though even in this field the competition of the railroads made itself felt. Between 1860 and 1880 the number of vessels engaged in the coastwise trade remained almost stationary, but by 1900 it had practically doubled. On the open waters of the Atlantic the steel sailing schooner was able to hold its own against the steamer, owing to economies in manipulating sails and in loading and unloading cargoes by the use of steam driven machinery. Coal, lumber, cotton, and similar bulky commodities constituted the chief items of coastwise commerce.

284. Internal trade. — It is evident, from the great growth of the means of transportation, that a vast internal commerce was developing in the United States. Although the volume of this trade has never been accurately measured, as is done in the case of the value of the imports which enter our harbors, it has been estimated that the value of our internal commerce grew from about $3,500,000,000 in 1860 to about $20,000,000,000 in 1900, or seven to nine times as much as the total foreign trade of the United States at these respective dates. At the latter date our internal commerce equaled in value the total foreign trade of all nations of the world. The increase in the internal trade of the country accompanied the growth in specialization which was taking place in the nation's industries, and was facilitated by improvements in transportation and the mechanism of exchange. In a community where each family produced its own food and other necessities, few exchanges were made, but as each individual and locality specialized in a single line of production, the business of effecting exchanges became increasingly important.

At the time of the Civil War most classes of manufactured goods passed from the manufacturers to the jobbers or commission men and were by them distributed to the retailers and next passed on to the consumer. Manufacturing establishments were small and widely scattered, as were also retail establishments, and it was impossible for them to deal directly with one another. Under the circumstances the middleman

performed a useful and necessary service. As the business units grew larger, however, changes in business methods were introduced, all looking to the elimination of the middleman. Large companies, like the Standard Oil and the Pittsburgh Plate Glass Company, adopted the practice of making direct sales to retailers or consumers. The growth of large retail establishments, such as department stores with special buyers of their own, tended also in the same direction. These changes on the whole reduced the costs of doing business and resulted in lower prices to consumers.

285. The merchant marine. — In the ownership of merchant shipping engaged in foreign trade there was a steady decline during this period. The earlier development had brought the tonnage of our foreign merchant marine up to 2,496,894 in 1861, the highest point ever reached, but by 1880 it was down to 1,352,810, and by 1900 it had sunk to 826,694.[1]

During the Civil War almost a third of our vessels were sold to foreigners, others were destroyed by Confederate cruisers or sold to the government for conversion into transports and cruisers. Congress refused to admit vessels sold abroad to American registry again, and our ship-builders were unable to make up the deficiency. The heavy war taxes which had been imposed upon hulls of vessels and marine engines were repealed in 1868, but the duties on cordage, copper, and iron still remained, although a few ship-building materials were admitted free of duty between 1872 and 1875. These disadvantages made it impossible to compete with British and foreign ship-builders in the construction of iron steamships, and with the passing of the wooden sailing vessel the carrying-trade passed almost entirely into foreign hands. By 1865 the percentage of foreign commerce carried in American bottoms was only 27 per cent., by 1880 it had fallen to 18

[1] Even this small amount was said to exaggerate our strength. Mr. Neall, a shipping merchant of Philadelphia, stated before the Industrial Commission in 1900, that less than 300,000 tons were suitable for transoceanic traffic.

per cent., and by 1900 to 9.3 per cent. Between 1865 and 1870 we had made a slight gain, even with our wooden sailing vessels, which did not have to give up valuable cargo space to coal, as did steamers on long voyages; but in the latter year the opening of the Suez Canal gave the advantage to the steamer in the China trade by permitting it to recoal *en route*, and inflicted the last blow on our struggling merchant marine.

The real explanation of this steady decline is to be found in the larger profits to be obtained from other branches of industry. This was a period of rapid railroad building, of the exploitation of our mineral and forest resources, and of the development of large-scale manufactures. The largest returns were to be had by the investment of American capital in these lines, and the handing over of the carrying trade to other nations which lacked similar opportunities for internal development. There was a great expansion of our foreign trade, but the proportion carried in American vessels fell from 66.5 per cent. in 1860 to 9.3 per cent. in 1900.

286. Growth of the foreign trade. — The advance of this country as an exporting nation from fourth place in 1860 to second rank in all the world in 1900 called attention to the advance which was taking place in our productive power and suggested the possibility of further changes in the movement of the world's trade. Until recently the people of the United States were occupied primarily with the task of appropriating and developing the resources of the country, and, like most new countries, purchased more than they sold, running heavily into debt for supplies of capital and manufactured goods. This period may be said to have ended in 1876; up to that time in only comparative few years had the exports exceeded the imports, while after that date they fell behind in only four years, namely, 1888, 1889, 1893 and 1895.

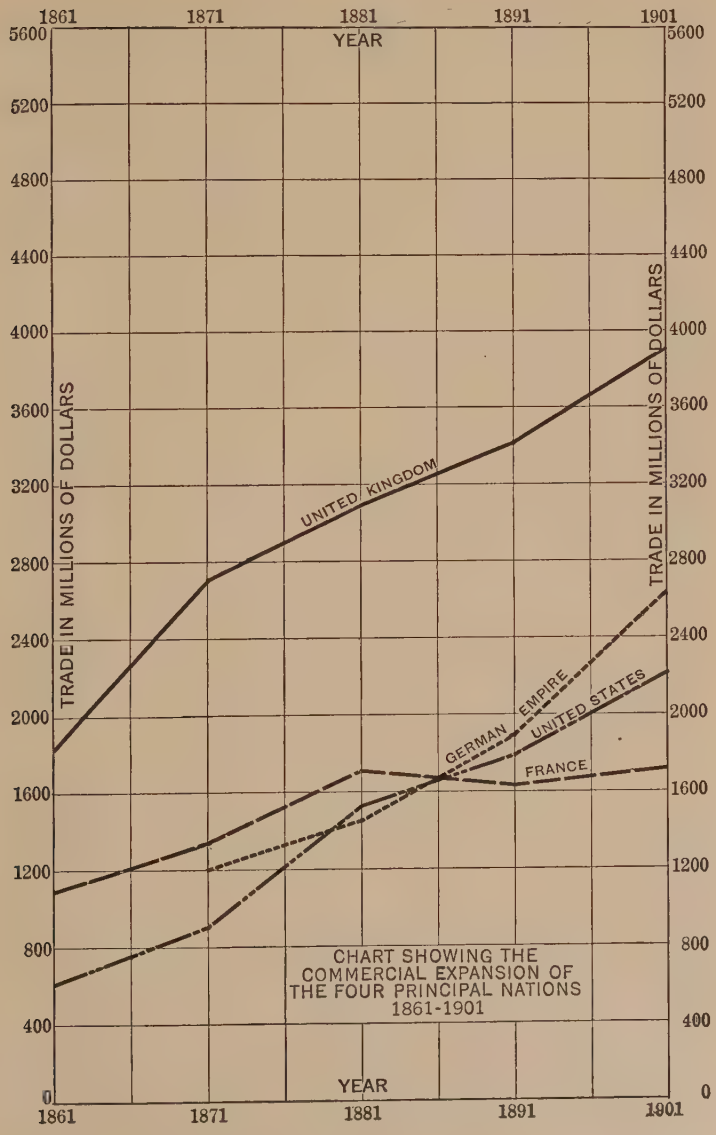
The following table shows the growth of the foreign trade of the United States, and the more important changes which were taking place during the nineteenth century:

FOREIGN TRADE OF THE UNITED STATES (IN MILLIONS OF DOLLARS)

Year	Domestic Exports of Merchandise	Imports of Merchandise	Excess of Imports over Exports	Percentage which Agricultural Products formed of Exports	Percentage which Manufactures formed of Exports
1790	20.2	.....	.....	....	6.1
1800	31.8	91.2	59.4	80.4	7.8
1810	42.3	85.4	43.1	78.9	9.3
1820	51.6	74.4	22.8	80.6	7.5
1830	58.5	62.7	4.2	80.3	11.3
1840	111.6	98.2	13.4[1]	82.8	9.9
1850	134.9	173.5	38.6	80.5	13.0
1860	316.2	353.6	37.4	81.1	12.7
1870	376.6	435.9	59.3	79.3	15.0
1880	823.9	667.9	156.0[1]	83.2	12.5
1890	845.2	789.3	55.9[1]	74.5	17.8
1900	1,370.7	849.9	520.8[1]	60.9	31.6

[1] Excess of exports over imports.

287. Principles of international trade. — All trade, whether foreign or domestic, is based upon the same principle, that of a territorial division of labor, whereby each section endeavors to produce those things for which it is best fitted. Thus California raises fruits and exchanges them for shoes and cotton cloth from Massachusetts. Similarly in foreign trade each country produces for export those things which it can produce most cheaply, and imports in exchange other articles which are produced most cheaply by other countries. Thus the United States exports raw cotton and petroleum in exchange for tropical spices or fine manufactured goods which are not so easily produced here as in other places. Owing to the fact that the world is divided among different nations, with varying languages and customs, and in different stages of economic development, and to the further fact that foreign trade is often regulated by tariff legislation, this branch of commerce is often treated as though it were different in principle from


1861
1871
1881
1891
1901
YEAR
5600
5200
4800
4400
4000
3600
3200
2800
2400
2000
1600
1200
800
400
0
TRADE IN MILLIONS OF DOLLARS
UNITED KINGDOM
GERMAN EMPIRE
UNITED STATES
FRANCE
CHART SHOWING THE
COMMERCIAL EXPANSION OF
THE FOUR PRINCIPAL NATIONS
1861-1901

domestic trade. The distinction is rather one of degree. In each case exchange is attended by mutual benefits to both parties. As long as differences in climate, resources, and ability exist in different sections of the earth's surface, international trade will persist. With every improvement in transportation and removal of barriers to freedom of exchange it will increase. Every movement towards the localization of an industry necessitates a development of exchange with other industries. To-day international competition has taken an economic instead of a military form, and commercial supremacy means the conquest of foreign markets. The most striking phenomenon of the nineteenth century was the immense growth in the foreign trade of the world. In 1800 the world's trade was less than half as much as the foreign trade of the United States alone in 1900. The foreign commerce of the United States showed a very steady growth, which was especially rapid after 1860.

288. Special factors in the United States. — There were several special reasons for the rapid growth of the foreign trade of the United States, particularly during the last quarter of the nineteenth century. Our relations were becoming closer with tropical and sub-tropical countries, as Central and South America, the Orient and our own foreign possessions. We were buying more largely of their peculiar products, which could not be so cheaply produced within our own limits, and on the other hand found them increasingly good customers for our growing manufactures or for cruder products such as petroleum. The development of a higher standard of living among our own people increased the consumption of such semi-luxuries as coffee, tea, sugar, etc. The growth of our foreign born population through immigration also had the effect of increasing the demand for articles produced in the countries of their birth, sometimes by artisans accustomed to work with particular commodities, more often for articles of popular consumption. The demands of our manufactures for raw or partly finished materials for their

industries also increased our imports, especially of such articles as rubber, raw silk, hides and skins, tin, vegetable fibers, raw wool, chemicals, etc. Our expanding manufactures now sought new markets for their surplus output and were reaching out after their share of the world's trade. They began to invade the markets of Europe as well as those of the industrially less developed nations.

289. Exports and Imports. — The United States was still thinly settled, and one half of the population was engaged in agriculture, mining, lumbering, cattle-raising, and other extractive industries. Compared with Europe, which is nearly equal in area, this country was in the extractive stage of industry. During the first century of our national existence, accordingly, our exports were chiefly of agricultural products, to which mineral products were added in the last third of the period. The six most important exports, in the order of their importance in 1900, were breadstuffs, raw cotton, meat and dairy products, iron and steel and their manufactures, petroleum, and copper and its manufactures. It will be seen that most of these were derived from the fields and mines rather than from the factories. Together they made up almost two thirds of all exports, cotton alone furnishing 17 per cent.

The growth of exports of manufactured articles began to be increasingly important in the last decade of this period. In 1860 this group, including both manufactures ready for consumption and manufactures for further use in manufacturing, made up 12.7 per cent. of our exports; in 1880 the proportion was 12.5 per cent. But in 1900 it was 31.6 per cent., amounting to $485,000,000. As machine builders we were winning especial recognition. Our pre-eminence in this field was due to a variety of causes, among which may be mentioned the cheapness of raw materials, a liberal patent system, the genius of men like Westinghouse and Edison, and a native skill in the use of machinery. The relative decline in agricultural exports was due to the enormous increase in the population, coupled with the operation of the law of diminish-

ing returns in agriculture, which resulted in the home consumption of an increasing share of our food supply. There was also a relative decline after 1860 in the importance of southern products, cotton and tobacco, due to the rise of other products in other parts of the country.

The growth in our foreign trade was not confined entirely to the increase in export trade. As the people of the United States produced more and grew richer, they became at the same time better customers of other countries, and imported more freely. From $316,000,000 in 1860 our imports had grown to $1,370,000,000 in 1900. Most of this increase consisted of luxuries or of manufacturers' materials, the latter group making up 45 per cent. of the total.

290. Balance of trade. — An excess of exports over imports is usually called a "favorable" balance of trade. Such a situation may indicate that a country is putting other countries into its debt by selling them more than it buys, or it may be an index of the fact that the country is itself in debt and is paying tribute for capital loaned or services rendered. The latter seems to have been the case in the United States.

After deducting the imports from the exports there remained a "favorable trade balance" to our credit of $396,000,000 a year on the average for the last five years of this period; this large excess of exports had been characteristic of our foreign trade since 1876, and was usually regarded as an indication of national prosperity. But it must be remembered that there were several important items which did not appear on the merchandise balance sheet, but which materially offset this excess. The domestic cost of the imports was much greater than it appeared to be, for no allowance was made in these statistics for undervaluation, tariff duties, commissions, profits of importers, etc. In the second place, a large amount of our merchandise exports went to pay for expenditures of American travelers abroad, the interest on foreign capital invested in this country, payments to foreign shipowners for carrying our freights, insurance, and other similar expenses.

And, finally, these statistics did not include the shipments of gold and silver from one country to another. As we are a gold and silver producing nation we might be expected normally to export more than we import, but in seven out of the last fifteen years there was an excess of specie imports over exports. But even after these deductions were made there probably remained a small annual balance in our favor, which was steadily being applied to the reduction of our foreign indebtedness, or investment abroad.

291. Means of communication. — The development and improvement of the means of communication kept pace with the industrial and commercial growth in other directions. Almost as necessary as an adequate system of transportation lines for carrying on the enormous domestic and foreign trade were the means of communication by which business men could inform themselves of industrial conditions and direct distant enterprises. Indeed, without the telegraph and telephone the great manufacturing enterprises and railroads could not have been brought together in unified concerns. Improved means of transportation, communication, and credit combined to make possible the development of nineteenth century industry.

The use of the telegraph received a tremendous impetus by the invention in 1872 of duplex telegraphy, which greatly reduced the cost of sending messages. The importance of the telegraph is only partially indicated by the number of messages sent, which increased from 8,000,000 in 1869 to about 65,000,000 by the end of the century. American ingenuity also applied telegraphy to various other uses, such as fire alarm boxes, stock tickers, district messenger service, etc.

Of more general service for short distances was the telephone, which was invented in 1876 and was in general use by 1880 with 50,000 receiving telephones in operation; by 1895 over 660,000 telephones were in use. In course of time the service was extended over longer distances, and in 1892 a line was opened between New York and Chicago.

The first commercially successful Atlantic cable was laid

in 1866, although an earlier one had been in operation a few months in 1858. By the end of the century ocean cables crossed both the Atlantic and Pacific and afforded speedy communication with every part of the world.

The postal service of the country expanded during this period even more rapidly than population or industry: from 28,498 post-offices in 1860 the number grew to 42,989 in 1880, and 76,688 in 1900. Various improvements in the mail service increased its efficiency, such as free city delivery (1863), postal money orders (1864), mail cars in which the sorting of mail was carried on *en route*; post cards were first issued in 1873, special delivery letters were authorized in 1885, and free rural delivery in 1896. At the same time postage rates on letters were reduced from 3 cents per half-ounce, as established in 1850, to 2 cents an ounce by act of 1883. Cheap and efficient postal service was an invaluable aid in promoting the industrial growth of the country. Improved means of transportation and communication were accompanied too by a growth in the amount of advertising matter, and of books and newspapers, as it was one of the main factors in their speedy and economical distribution. The newspapers of the United States increased from about 400 in 1860 to 9723 in 1880, and to 18,226 in 1900.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXI

The first problem laid upon the transportation system during this period was that of providing adequate facilities for carrying the rapidly increasing commerce of the country. In solving this mistakes were made along many lines and to the correction of these attention was increasingly given by the end of the period.

1. What part of the country showed the most rapid railway growth after the Civil War? Why? [A. T. Hadley, 37–38; E. R. Johnson, 27; Scribner's Stat. Atlas.]

2. Describe the diversion of traffic from the Great Lakes to the railroads, and give all of the reasons. [G. C. Tunell in Journ. Pol. Econ., V, 340.]

3. Was the policy of land grants in aid of railroads successful? Why was it discontinued? [H. C. Adams, Sci. of Finance, 258; J. B. Sanborn,

Congressional Grants of Land in Aid of Railways, chaps. 5–8; I. L. Ringwalt, 225; Johnson, chap. 22.]

4. Did the United States ever get back the money loaned to the Pacific railroads? [Report of Secretary of Treasury, 1897; J. B. Davis, Union Pacific Ry., chap. 8; Annals, VIII, 259; Johnson, 316.]

5. Describe the principal consolidations that took place during this period. [Hadley, chap. 5.]

6. What were the principal pools of the seventies, and upon what basis arranged? [Johnson, chap. 16; Hadley, chap. 5; I. L. Ringwalt, 272.]

7. What were the so-called differentials? In whose favor did they operate? [Hadley, 95–98.]

8. Why are discriminations granted by railroads? Do you know of any cases where this was done? [Industrial Com. Rep., IV, 5–7; F. Parsons, Heart of the Railroad Problem, 17, 23.]

9. What is pooling? Should it be permitted? [Hadley, 74, 91, 143; Johnson, 228–243, 256; W. C. Noyes, Amer. Railroad Rates, 146.]

10. What is meant by a business of "increasing returns"? Is the railroad a business of this kind? [Adams, Sci. of Fin., 394; A. Marshall, Princ. of Econ., book 4, chap. 3.]

11. What objections are there to the granting of passes to public officials? to private individuals?

12. What was the so-called Granger legislation? Why was it passed and what effects did it have? [C. F. Adams, The Granger Movement, in No. Amer. Rev., CXX, 394; W. G. Moody, Land and Lab., chap. 3.; E. W. Martin, Hist. of the Grange Movement, part 6.]

13. Describe the building and completion of the Pacific railroads. [Davis, Union Pac. Ry., chap. 5; R. Johnson, Great Events, XVIII, 287–301.]

14. What was the Credit Mobilier? [Davis, chap. 6; J. B. Crawford, Credit Mobilier of America; Rept. Ho. of Rep., 42 Cong., 3 sess., nos. 77, 78; J. F. Rhodes, Hist. of U. S., VII, chap. 1.]

15. Tell about the first invention of the telephone. Was Bell entitled to the credit and profits? [E. W. Bryn, Progress of Invention; Encycl.]

16. Compare transportation by water and rail from Chicago to New York as to speed, cost, etc. What effect did these have on traffic? [Internal Commerce, Treas. Rept., 1887; H. T. Newcomb, Railway Econ., 35.]

17. What were the jetties at the mouth of the Mississippi River, and for what purpose were they built?

18. Describe the laying of the Atlantic Cable.

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CHAPTER XXII

CURRENCY AND BANKING

292. The issue of legal tender notes. — The monetary history of the United States in the period beginning with the Civil War is so important and so intimately connected with the economic history of the time that it becomes necessary at this point to treat the subject of currency and banking with greater fulness than has until now been thought desirable. The issue of legal tender paper money by the government, the establishment of the national banking system, and the silver legislation had far-reaching economic effects upon industry, wages, and the distribution of wealth, as well as striking financial, political, and social results. The connecting principle unifying the monetary history of the United States during the thirty-five years after the Civil War was a persistent demand for more money, and the endeavor to force the Federal government to supply it. Public attention was successively directed to paper money, to silver, and finally to bank-notes as the best method of meeting this need.

From the adoption of the Constitution to the Civil War the United States government had never issued paper money, though treasury notes, issued three times in this period, had had a limited circulation; gold and silver alone had been made legal tender, and after the final establishment of the independent treasury system in 1846, they alone had been used by the government in its financial dealings. But soon after the outbreak of the Civil War the necessities of the treasury department led to the issue of legal tender paper money directly by the government, to a total amount of $450,000,000. At the time these notes were first issued the whole country was using bank-notes issued by some sixteen

hundred banking institutions, in addition to gold and silver. Owing chiefly to unwise action on the part of the treasury department, specie payments, that is the use of coin in ordinary transactions, had been suspended by both the banks and the treasury at the end of 1861. The United States notes, therefore, were not redeemable in coin, but were true inconvertible paper money. The denomination of the lowest notes issued was steadily reduced from $10 in the first to $5 in the second, and finally $1 in the third issue, while subsequently provision was made for fractional paper currency, so that within two years from the commencement of the war the country was completely provided with a paper currency issued directly by the government.

293. Financial effects. — One of the first effects of the issue of United States notes or greenbacks was their depreciation or fall in value, with an accompanying rise in the prices of commodities, and a fluctuating premium on gold. The depreciation of the currency was increased by the expansion of bank issues and deposits, and was influenced by the success of the Union army, but in general was proportioned to the inflation produced by over-issue.

While the issue of greenbacks was justified on the ground of the financial necessity of providing the treasury with the means of payment, the final cost of the war was immensely increased by their use. Owing to the depreciation of the greenback the government was compelled to pay higher prices for commodities and labor, while the returns from bonds, measured in gold, steadily fell off, though the nominal price remained high. In both these ways, therefore, there was a great increase in the cost of conducting the war; the total effect has been estimated at between $528,000,000 and $617,000,000. But in addition to this direct and calculable increase there were indirect effects, such as the greater extravagance of Congress in appropriations induced by the easy-going paper money policy. The total cost of the Civil War is given by Dewey as $6,190,000,000.

294. Economic effects. — Large as was the financial addition to the cost of the war to the government as a result of the issue of greenbacks, it was small when compared with the burdens imposed by inflated prices upon the people in their private business relations. The increase in relative prices and wages during the war, according to the Aldrich report, was as follows:

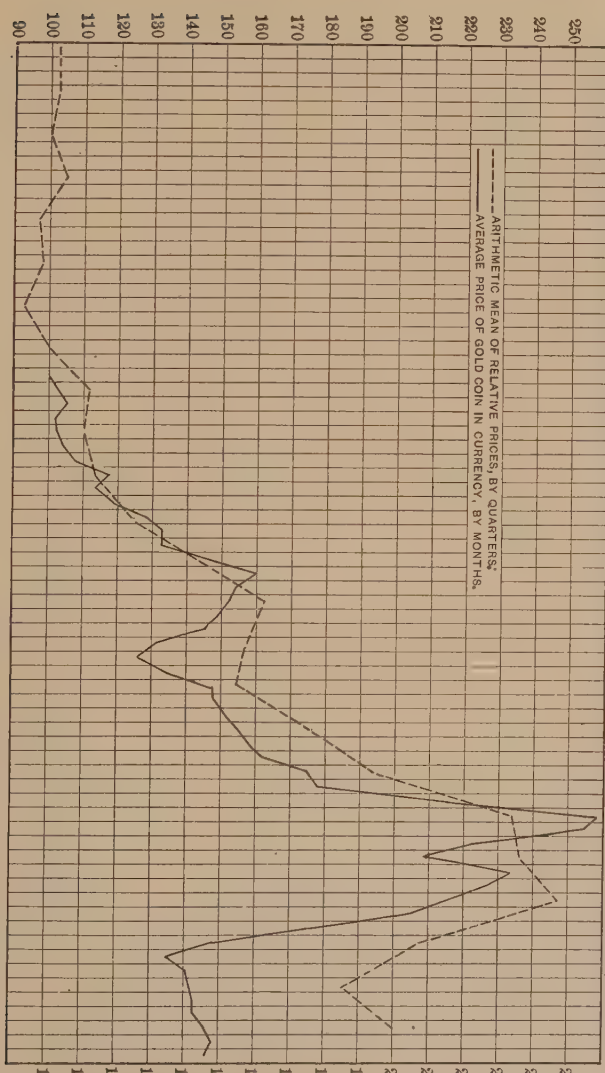
Year	Prices Simple Averages	Money Wages Simple Averages	Real Wages Simple Averages
1860.....	100.0	100.0	100
1861.....	100.6	100.8	100
1862.....	117.8	102.9	87
1863.....	148.6	110.5	74
1864.....	190.5	125.6	66
1865.....	216.8	143.1	66
1866.....	191.0	152.4	79

It is evident from this table that, if we take the year 1860 as the base and call general prices in that year 100, general prices continued to rise steadily during the war. The rise affected various articles very differently, however, as the price of some of them increased much more rapidly than others; agricultural products did not advance as quickly or as much as manufactured commodities. Money wages lagged far behind prices, in obedience to a general economic law, and the real wages of the laborers of the country were accordingly greatly reduced. This entailed discontent, labor disputes, and often much real hardship and suffering. The issue of paper money acted like a tax upon the people, but a most unfair tax and one for which there was no commensurate return to the government. In so far as the government was an employer of labor there was a certain saving at the expense of the workers, but this was more than offset by the loss of the most efficient employees. The wages of the soldiers remained at $13 a month until May 1, 1864, when it was raised to $16, a change which

fell far short of the actual increase in the cost of living. In general, workingmen were able in time to secure advances in their wages, especially in the better organized trades; in some cases, however, as that of school-teachers, ministers, and salaried persons in general, it was difficult to make both ends meet. To some extent it was possible to obviate the pressure of higher prices by substituting some lower priced article for the more expensive one, but in so far as this necessitated a lowering of the standard of living, it was a most regrettable result of the paper money policy.

295. Contraction of the greenbacks and opposition. — Upon the conclusion of the war, it was thought that the paper money, whose issue had been advocated as a temporary measure, would be withdrawn and specie payments resumed. In 1866 the policy of retiring a certain amount of the greenbacks monthly was begun, and continued until the total amount outstanding had been reduced to $356,000,000; at this point Congress prohibited the further retirement of the notes by act of February 4, 1868. The rise in the value of the greenback and the reorganization of business after the conclusion of peace had brought about a commercial depression, which was popularly attributed to the policy of contraction. Many persons now began to demand that the greenbacks should not be retired, but should be retained as a permanent part of our monetary system. During the serious panic of 1873, heavy pressure was brought to bear upon the Treasury to relieve the banks and the business community, by reissuing the greenbacks which had been redeemed but not destroyed; accordingly, the Secretary reissued $26,000,000 in exchange for bonds. The clamor for cheap paper money now became louder, and in 1874 resulted in the passage by Congress of the inflation bill, providing for the increase in the issue of greenbacks to $400,000,000. When this was vetoed by President Grant, the amount was fixed at the circulation then outstanding — $382,000,000.

296. The panic of 1873. — The crisis of 1873 was by no



FLUCTUATIONS IN THE CURRENCY PRICES OF COMMODITIES AND GOLD, 1860–65

means a financial panic only; it was the result of general industrial causes which were not confined to the United States. For four years there had been unprecedented activity in agriculture, manufactures, and transportation, and enormous amounts of capital had been invested in fixed forms as railways, docks, and factories. Many of these were built in advance of immediate needs and did not yield a return, while the opening up of new land in the West threw older areas out of cultivation and rendered them less valuable. As in 1857, the most serious weakness was shown in connection with railroad building, which was too rapid to be healthy. The period of rising prices under the inflated currency led to over-expansion and speculation along all lines. The fluctuations in prices due to a changing standard produced one of the most speculative and extravagant periods in our history, which was restrained by no strong public sentiment. Those were the days of Erie, of the Credit Mobilier, and other similar speculations. The same causes also induced waste and extravagance in private life; conservatism and economy were forgotten. Finally the bubble burst. On September 13th a stock brokerage house failed, followed a couple of days later by two important banks. By the 20th the excitement was intense and runs began on several banks. The stock exchange was closed for ten days, and at the same time the banks united in the issue of clearing house certificates, which helped to relieve the money stringency. Nevertheless on September 24th the New York banks were forced partially to suspend specie payments. There ensued a period of liquidation, marked by the failure and bankruptcy of many banks, railroads, and business houses all over the country. The severe and unprecedented depression which followed continued in most branches of business until 1878, and in some lines until 1879. By that time the country had caught up with the earlier excessive investments, and again entered upon a period of rapid industrial advance.

297. Resumption of specie payments. — The fall in prices

from the speculative heights of 1873 caused a renewal of currency discussions. The agitation for an irredeemable paper currency led in 1876 to the formation of the National Greenback Party, which reached its greatest strength in 1878, when it polled over 1,000,000 votes, chiefly in the newer West and South. Before this, however, the Republican Party had passed the Resumption Act of January 14, 1875, which provided for the accumulation of a gold reserve from surplus revenues and the sale of bonds, for the purpose of redeeming the greenbacks; provision was also made for a partial retirement of these notes. Before the plan could be carried through Congress again interfered, in 1878, to check the policy of contraction, and by the act of May 31 fixed the amount of greenbacks at the number in circulation on that day, $346,681,016, at which point it has ever since remained. The resumption of specie payments was rendered certain by the accumulation of a gold reserve of $133,000,000, which a fortunate increase in our grain exports enabled us to keep and enlarge. On January 1, 1879, the Treasury began the redemption of greenbacks in gold. Owing to the provisions of the law, however, the greenbacks, when redeemed, were not to be destroyed, but "must be reissued." They remained, therefore, a permanent part of our money supply.

298. The national banking act. — When the war broke out the circulating medium of the country consisted of coin and of bank-notes. These notes were issued by some sixteen hundred institutions, operating under State laws, and had only a local circulation at best, while some of them were nearly worthless. To replace these and provide a safe national currency of uniform value was highly desirable, and was one of the causes which led to the establishment of the national banking system. More important was the necessity of finding a market for the United States bonds, whose sale formed the chief reliance of the government for carrying on the war. To secure this end, by the act of February 25, 1863, national banks were required to base their note issues upon government bonds.

The characteristic point in the new system was the provision that the banks organizing under a Federal charter must buy United States bonds and deposit them with the government; they were then permitted to issue bank-notes up to ninety per cent. of the par value of the bonds. Other provisions regulated the capital, the liability of stockholders, the amount of reserve, examination of accounts, etc. Owing to the slowness with which banks came into the system, the issue of notes by State banks was prevented by a tax of ten per cent. annually (act of March 3, 1865). A monopoly of note-issue was thus secured to the national banks. The other functions of banking were left open to banks chartered by State authority and to private banks.

299. History of the national banking system. — The circulation of the national banks did not increase as rapidly as had been expected; in 1873, when high-water mark was reached, the outstanding circulation amounted to only $339,000,000. This failure to expand was chiefly due to the rapid rise in the price of government bonds, which made it more profitable to the banks to sell the bonds at a profit and retire their notes than to hold the bonds and keep their notes in circulation. By 1876 the circulation had been reduced to $291,000,000, and while it increased somewhat during the next few years, a steady decline set in about 1883 which continued uninterruptedly until the bank-note circulation had declined to $168,000,000 in 1891. This shrinkage was brought about largely by the payment of the national debt as it fell due and the consequent retirement of the bonds on which the notes were based. An effort was made in the act of July 12, 1882, to make the conditions of note-issue more profitable to the banks, but popular hostility to the national banks was still so great that little was done.

During the next two decades various proposals were made to secure a larger and more elastic note-issue: the repeal of the tax on circulation; funding of the outstanding United States bonds into other bonds bearing a lower rate of interest and

running for a longer time; deposit of approved State or municipal bonds instead of national bonds; issuance of notes by banks on their general credit, to be secured by a general safety fund, to which all the national banks should contribute. There was, however, no further legislation upon the subject, and with the steady reduction of the debt it seemed as though the national bank-note circulation would soon have to disappear. But the act of March 14, 1900, gave a new lease of life to the system: circulation might be issued to the full face value of the bonds deposited; part of the existing national debt was to be refunded in new two per cent. thirty-year bonds, and upon all new circulation based on these bonds the tax was reduced from one to one half per cent. per annum. At the same time that note issue was made more profitable, the minimum amount of capital was reduced from $50,000 to $25,000 in towns with a population not exceeding 3000. These inducements led to a considerable increase in the number of national banks, as well as to an increased circulation. Little was done by the act, however, to make the monetary system more elastic, while the final reform of the national banking system was simply postponed.

300. The demonetization of silver. — In response to a suggestion made at the international monetary conference, held in Paris in 1867, a movement was begun in the United States in 1869 to revise the mint laws. These had not been changed since 1837, and some of the coins had become obsolete. A bill was accordingly prepared by the deputy comptroller of the Treasury, submitted to experts for advice, and introduced into the Senate on April 25, 1870. After debating the measure for five sessions Congress finally enacted it into law February 12, 1873. The most important provision of the act was the section dropping the standard silver dollar from the list of coins to be coined by the United States. At the time the act attracted little attention, for we were using neither silver nor gold then, greenbacks and national bank-notes being the only forms of money circulation. Not only that, but for forty

years the silver dollar had not been in circulation, as the bullion in a silver dollar was worth about $1.02 in gold, and it was therefore more profitable to melt up the silver dollars than to keep them in circulation. In the seventy-nine years since the establishment of the mint in 1792 only 8,031,238 silver dollars had been coined and not one of these was in circulation.

A number of causes soon combined to bring the demonetization of silver to general notice. The adoption of the gold standard and the sale of her silver by Germany (1870–71), the limitation of the coinage of silver by the Latin Union (1873), the demonetization of silver in Holland and the Scandinavian peninsula (1875), together with a great increase in silver production from newly discovered mines in Nevada, brought about a fall in the price of silver. By 1876 the silver dollar was worth only ninety cents, and the inflationists who desired more money, defeated in their efforts to secure the issue of additional greenbacks, began to demand the coinage of silver. In this demand they were strongly seconded by the silver mine owners, who were bringing a largely increased supply to a falling market. There were also many who thought that the panic of 1873 and the prolonged stringency in the money market were due to the "crime of 1873," and who honestly believed that the country needed more money in circulation. As a result of these causes there began about 1876 a vigorous agitation for the "remonetization," or free coinage, of silver.

301. The Bland-Allison Act of 1878. — Under the leadership of Mr. Bland, an ardent advocate of silver, a bill was passed by the House of Representatives, November 5, 1877, providing for the free and unlimited coinage of silver at the ratio of 16 to 1. In the Senate, where the free coinage sentiment was not so strong, it was amended so as to provide for the coinage of a limited amount of silver, and in this form finally became law, February 28, 1878. The act provided for the purchase of silver bullion by the Secretary of the

Treasury, not less than $2,000,000 nor more than $4,000,000 worth per month, and its coinage into silver dollars of 412½ grains. Provision was also made for the issue of silver certificates in denomination of $10 and upwards, upon deposit of silver dollars. As it was found impossible to keep more than a small part of the silver dollars in circulation, the lowest denomination of the silver certificates was reduced in 1886 to $1, and in this form most of the silver purchased went into circulation. The minimum amount of silver provided by the law was purchased each month; this resulted in an average increase in the circulating medium of the country of about $30,000,000 per annum. During the twelve years of the operation of the Bland-Allison Act there were coined 378,166,000 silver dollars.

We have seen that the amount of greenbacks had been permanently fixed in 1878, and that the national bank-note circulation steadily declined during the eighties. As the industrial development of the country was proceeding during this period at an unprecedented rate, with the exception of the short depression of 1884, it is probable that this addition to our money supply merely kept pace with our growing needs. It is probably also true that if this silver had not been coined its place would have been filled largely, if not wholly, by the importation of gold.

302. The Sherman Act of 1890. — By 1890 the silver advocates were strong enough to force more favorable action in Congress, and on July 14 of that year they obtained the passage of the so-called Sherman Act. This provided for the purchase by the Secretary of the Treasury of 4,500,000 ounces of silver each month, and the issuance in payment therefor of treasury notes of full legal tender character. These notes, which were based upon deposit of silver bullion, were nevertheless made redeemable in either gold or silver coin. The amount of silver purchased under this act was almost double that required by the silver act of 1878, amounting to about $50,000,000 per annum. During the three years of its opera-

tion, until its repeal on November 1, 1893, there were issued $155,931,002 in treasury notes. If the additions to the currency under the previous law were sufficient, the increased supply forced upon the country by the Sherman Act was too much. Gold began to be crowded out of circulation; in the first six months of 1891 over $70,000,000 in gold was exported

ALL-STEEL GOLD DREDGE

The picturesque miner with his old-fashioned pan has given place on most of the western rivers, where gold is found, to the gold dredge. This machine works its way up a stream, sucking up the gold-bearing sand before it by hydraulic pressure if it is fine enough, otherwise digging up the earth and gravel by a continuous chain of buckets. After the gold has been separated from the gravel, the latter is dumped behind the boat or on either side. A modern dredge will work to seven feet below the water line and will stack tailings seven feet above it, treating an average of 250,000 cubic yards a month. Farmers complain of the disfigurement of the stream, the frequent diversion of its course, and the destruction of the soil on either side, as results of dredging.

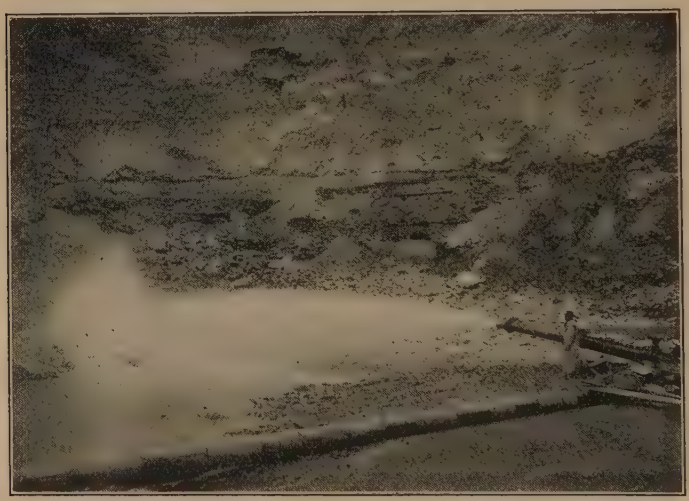
from the United States. Much of this gold was drawn from the Treasury, and the gold reserve, which had been created under the resumption act for the redemption of greenbacks, was reduced by June, 1891, to $118,000,000; by January, 1894, it had fallen below $66,000,000.

Doubts soon began to be entertained as to the ability of the government to redeem its promises, and the presentation of greenbacks and treasury notes at the treasury for redemption in gold began on an unprecedented scale. At the same time the revenues of the government were greatly reduced by the passage of the McKinley and Wilson tariff bills, while extravagant appropriations on the part of Congress prevented the accumulation of funds to meet this drain. Partly as a result of these causes, but more especially as the result of over-speculation, inflated credit, and over-investment of capital in risky enterprises, the panic of 1893 broke upon the business world.

303. The panic of 1893. — The financial crisis of 1893 was one of the most severe the country had ever experienced; trade and industry were disorganized, and every department of industrial life was affected. The price of silver fell greatly, owing to the closing of the India mints; western silver mines were shut down, and their employees thrown out of work. During the year 573 banks and banking institutions failed, mostly in the West and South. Gold and other forms of currency were hoarded and a premium of 4 per cent. was offered by money-brokers for cash. Commercial failures increased greatly; from 4171 in the six months, April 1 to October 1, 1892, they grew to 8105 during the same period in 1893, with liabilities of $284,663,624, as against $41,110,322 in the previous year. Several important railroad systems — the Philadelphia and Reading, the Erie, the Northern Pacific, and the Union Pacific — failed; one fourth of the railway capital of the country was in the hands of receivers; earnings fell off and new construction was suspended. The production of both coal and iron declined in consequence of the lessened demand. Finally, the farmers were involved in the general distress by the ruinous failure of the corn crop in 1894, and the falling off of the European demand for wheat, the price of which fell to less than fifty cents a bushel. The want and distress in general; relief work and assistance were provided

in most of the large cities for the unemployed. Strikes, riots, and labor demonstrations, such as the Chicago strike and Coxey's army, evidenced the widespread nature of the distress and the industrial unrest.

The uncertainty as to the ability of the government to redeem the greenbacks and treasury notes in gold prolonged the business unrest; to obtain the necessary gold for this



HYDRAULIC GOLD MINING NEAR TELLURIDE, COLORADO

The placer deposits are frequently mined by this process, a powerful stream of water washing the dirt and gravel into sluices, where the heavy gold is held by riffles and then collected by means of mercury. It is vastly more economical than the old hand methods.

purpose, and to meet current deficits, the Treasury sold bonds amounting to $262,000,000 in the years of 1894–96, and was able to keep the various forms of money on a parity. The decisive defeat of the free-silver advocates in the elections of 1896 put a practical end to the agitation for cheap money and restored business confidence.

304. The Currency Act of 1900 and gold discoveries. — Owing to the free-silver sentiment in the Senate it was not

possible to enact any legislation reforming the monetary system until 1900. By the act of March 14 of that year, the gold standard was definitely adopted; provision was made for the increase of the gold reserve fund to $150,000,000, and its application exclusively to redemption purposes, while fairly effective though clumsy methods for maintaining the fund were authorized. At the same time the gold discoveries in Alaska in 1898 brought about a great increase in the production of that metal and its circulation in the United States; in the three years between 1898 and 1900 there was coined at the United States mints over $288,000,000 in gold, as against a quinquennial average since 1873 of $258,000,000. This increase in our money supply, together with the additions to the bank-note circulation, brought up the per capita circulation from $23.85 in 1893, when the purchase of silver by the government ceased, to $26.93 on July 1, 1900.

305. Conclusion. — We may now try to summarize briefly our conclusions upon this difficult and debatable subject.

To obtain the fullest development of the resources of a country and the freest interchange of commodities and services an adequate supply of the media of exchange is essential. Just how much constitutes enough is, however, a matter of contention. In the undeveloped and sparsely settled sections of our country, where capital is scarce and banking facilities inadequate, there has always been a strong demand for cheap and abundant money. Before the Civil War this took the form of a demand for issues by State banks. When the government began the issue of greenbacks, and especially after the restriction of State bank-notes, the inflationists naturally looked to the Federal government for assistance; as they did not regard the national banks with favor they did not wish an increase in the issue of national bank-notes. After the failure of the efforts to inflate the currency by means of new issues of greenbacks, this party naturally turned to the coinage of silver, which was now falling in price. Failing to obtain absolutely free coinage of that metal they were

able to provide for the purchase by the United States government, from 1878 to 1893, of practically the entire silver production of the country.

With the filling up of the West, the large additions of new gold to our money supply, the provision of more adequate banking facilities in the sparsely settled districts, and the enactment of positive legislation on the subject by Congress, the demand for further inflation of the currency by direct action of the government was finally hushed. It must be said that the net results of efforts of the government to provide the necessary money for the people were disastrous. For the maintenance of an adequate supply we cannot do better than trust to the natural laws of trade.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXII

The immediate problem, upon the outbreak of the Civil War, was how to finance that struggle, and the answer as given by the North and the South differed in degree rather than in principle. For many years thereafter the main problem in connection with the currency was how to avoid the results of the inflationist policy and teaching. The demand for cheap money showed itself in many ways and led to several interesting experiments.

1. What was the cost of the Civil War? [W. C. Mitchell, Greenbacks and the Cost of the Civil War, in Journ. Pol. Econ., V, 117–156, also in Rep. of Mon. Com., 1898, 445–479; B. Rand, Econ. Hist., 520; A. S. Bolles, Fin. Hist., III, 241–248; H. C. Adams, Pub. Depts., 127–133.]

2. How was the war debt paid? [Payment of War Debt, in Rand, Econ. Hist., 522; A. S. Bolles, III, 315–320; J. Sherman, Recollections, I, 440; D. R. Dewey, 352-358.]

3. Was the issue of greenbacks necessary? [Dewey, 284–290; J. F. Rhodes, Hist. of U. S., III, 559–572; Mitchell, History of the Greenbacks; Bolles, Fin. Hist. of U. S., III, chaps. 3, 4, 8; J. J. Knox, U. S. Notes, chap. 9; H. White, Money and Banking, 148-165; A. B. Hart, Chase, chap. 9.]

4. Why did the issue of greenbacks drive out gold and increase prices? [Dewey, 292–297; C. Gide, Principles of Political Economy, 237–241; H. R. Seager. 309; C. J. Bullock, Intro., 234, 249.]

5. Is the issue of government paper money equivalent to an increase of wealth? [Gide, 265–269; F. A. Walker, Pol. Econ., 159–174; J. S. Mill, Pol. Econ., book 3, chap. 13.]

6. State the monetary demands of the Greenback Party; of the Populist Party. Do you approve of these demands? [F. L. McVey, Populist Movement; Dewey, 378–382; J. J. Lalor's Cyclopedia, II, 418–419; Atl. Mo., LII, 521–530.]

7. What is the present status of the greenback? [Dewey, 469–471; F. W. Taussig, The Currency Act of 1900, in Quart. Journ. Econ., XIV, 394–410; C. F. Dunbar, Safety of the Legal Tender Paper, in Quart. Journ. Econ., XI, 223.]

8. Describe the organization and working of a national bank with which you are acquainted. [C. F. Dunbar, Theory and Hist. of Banking, 132–141; White, Money and Banking, 406–414.]

9. What provisions exist to secure the safety of the national bank notes? [Dunbar, 167; Dewey, 375, 470.]

10. What is meant by the free coinage of silver? Has it ever existed in the United States? [D. K. Watson, Hist. of Amer Coinage, chap. 5.]

11. Was the act of 1873 passed secretly as the result of a gold conspiracy? [J. L. Laughlin, 92–105; White, 213–223; D. K. Watson, chap. 9; Dewey, 403–407; Bullock, Mon. Hist., 110–114; J. T. Cleary, The Crime of 1873, in Sound Currency, III, no 13.]

12. Why did silver fall in price after 1871? [Laughlin, chaps. 8–12; Watson, 119.]

13. How much did the per capita circulation of money increase from 1878 to 1900? Is it a good thing for a country to have a larger circulation of money? [A. T. Hadley, Economics, 214; F. A. Walker, Relation of Changes in the Volume of Currency to Prosperity, in Econ. Studies of Amer. Econ. Assoc., vol. 1, no. 1; F. A. Walker, Money, Trade, and Industry, chap. 4.]

14. Does the government make any effort to obtain gold for circulation? Why is it brought to the mint to be coined? Are we likely to get enough if we leave it to individuals? [Bullock, Introduction, 271–274; Seager, Introduction, 366.]

15. Why is the demand for money greater in sparsely settled communities than in thicky settled States? [C. J. Bullock, Mon., Hist., chap. 8; F. W. Taussig, Silver Situation, 113.]

16. Name all the different kinds of money in the United States and the amount of each in circulation. [An. Rep. of Secretary of Treasury.]

17. Could you suggest any improvements or reforms in our monetary system?

18. What is the independent treasury system? [D. Kinley, Independent Treasury System; J. J. Lalor, Cyclopedia, II, 493–496; Encyclopedias.]

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CHAPTER XXIII

MANUFACTURING FOR HOME USE

306. The growth of manufactures. — The most striking feature in the industrial development of the United States has been the enormous growth of manufactures, both absolutely and relatively to other branches of industry. Between 1850 and 1900 the population of the country more than trebled (from 23,191,876 to 76,149,386), and the products of agriculture trebled (from $1,600,000,000 to $4,739,000,000). But in the same period manufactures showed an increase of almost nineteen-fold in the amount of capital invested (from $533,000,000 to $9,835,000,000), and of twelve-fold in the value of products (from $1,019,000,000 to $13,014,000,000). The growth of manufactures may be shown by statistics, though the remarkable diversity of industries and increase in the volume of products is not revealed by such a method. The following table shows the progress in manufactures from 1850 to 1900:

GROWTH OF MANUFACTURES AND OF HOME CONSUMPTION.
1850–1900

Year	Value of products of national manufactures	Amount of capital invested	Average number of wage-earners	Importation of foreign manufactures	Consumption of domestic manufactures per cent.	Consumption of foreign manufactures, per cent.
1850	$1,019,109,616	$533,245,351	958,079	$130,838,280	88.39	11.61
1860	1,885,861,676	1,009,855,715	1,311,246	261,264,310	87.57	12.43
1870	4,232,325,442	2,118,208,769	2,053,996	308,363,496	93.14	6.86
1880	5,369,579,191	2,790,272,606	2,732,595	423,699,010	92.58	7.42
1890	9,372,437,283	6,525,156,486	4,251,613	230,685,581	97.60	2.40
1900	13,014,287,498	9,835,086,909	5,316,802	203,126,341	98.46	1.54

307. The Civil War as an industrial revolution. — We have already seen that the two decades prior to the Civil War had witnessed a rapid growth in the United States in manufacturing industries, which were yearly becoming more adequate to meet the home demands. It was certain that a nation which possessed the wonderful natural resources of this country would not long continue to purchase her manufactured commodities abroad. Sooner or later she would manufacture for herself all those things for whose production she was pre-eminently fitted by reason of the possession of boundless and cheap raw materials. This natural but slow process was, however, sharply altered by the Civil War, when, by the imposition of prohibitive tariff duties, the growth of domestic industries was greatly hastened. The industrial revolution thus inaugurated has been compared with that in England one hundred years before. It certainly marks a turning-point in the economic development of the country as distinct as that in its political life, and more significant in its effects than the earlier industrial revolution introduced in this country by the restrictive period fifty years before.

An official report in 1869, quoted by Dewey, declared that "within five years more cotton spindles had been put in operation, more iron furnaces erected, more iron smelted, more bars rolled, more steel made, more coal and copper mined, more lumber sawn and hewn, more houses and shops constructed, more manufactories of different kinds started, and more petroleum collected, refined, and exported, than during any equal period in the history of the country." And with the exception of the two or three years following the panic of 1873, a similar expansion characterized the next decade. The growth in the number of cities of 8000 inhabitants and over from 141 in 1860 to 286 in 1880 and to 446 in 1900 simply illustrates somewhat differently the increasing application of the people to manufacturing and industrial pursuits. Most of this expansion occurred, however, in the two decades 1880–1900, which witnessed the discovery and utilization of the

natural resources of the country on an unprecedented scale, the extension of the domestic market by the settlement of the West, the improvement and cheapening of transportation facilities, and the completer application of labor-saving devices.

308. The United States as a manufacturing nation. — This rapid industrial progress enabled the United States to outstrip all her rivals in the volume of her manufactures; from fourth place in 1860 she attained first rank by 1894, and thereafter was the leading manufacturing nation in the world. The following table from Mulhall's "Industries and Wealth of Nations" shows the relative rank of the United States in comparison with the foremost industrial nations of Europe:

MANUFACTURES IN THE UNITED STATES AND FOREIGN COUNTRIES

	Millions of Dollars			
	1820	1840	1860	1894
United Kingdom	1411	1883	2808	4263
France	1168	1606	2092	2900
Germany	900	1484	1995	3357
Austria	511	852	1129	1596
Other States	1654	2516	3455	5236
Europe	5644	8341	11,479	17,352
United States	268	467	1907	9498
Total	5912	8808	13,386	26,850

The industrial supremacy of the United States is still more evident if we compare particular industries. In 1890 she overtook Great Britain in the production of both pig iron and steel, in which England had hitherto been easily first; in 1900 this country produced nearly twice as much pig iron and over

twice as much steel as her insular rival, turning out about one third of the world's supply of each. Not merely in the production of raw cotton, of which the United States raised over sixty per cent. of the world supply, but in the manufacture of cotton goods, hitherto England's chief industry, this country made great gains; in 1900 our domestic manufactures used about 260,000,000 pounds of raw cotton more than the English mills, although the value of their product was greater, owing to the fact that they turned out finer grades of goods. The basic industry for all others, and the one which will probably determine the industrial supremacy of the nations, was the production of coal. In this the United States was surpassed by Great Britain until 1899, but after that time we led the world, producing about one third of the total supply.

309. Factors in the industrial development. — The cause which had the most immediate effect on the rapid growth of manufacturing industries was the imposition of heavy tariffs on all imported manufactured goods, by which the home market was practically reserved for domestic manufacturers. Whatever views are held as to the wisdom of a protective tariff, it must be admitted that the restrictive legislation dating from the Civil War hastened the development of those branches of manufacture which received protection. The war demands for food, clothing, arms, and similar commodities, the rise of prices occasioned by the over-issue of legal tender paper money, and other causes gave additional stimulus at the beginning of this period. More important, however, because more fundamental, were the changes going on in other parts of the industrial organism, which have been traced in the foregoing chapters. The opening up of the West and the immense expansion of our grain production, together with the development of improved means of transportation between the manufacturing and agricultural sections of the country, increased the purchasing power of the West and assured the eastern manufacturers a market for their goods. After the cessation of hostilities the South, too, made large demands

upon the North for capital in various forms, as well as for manufactured articles of every description, while the exploitation of the mines, forests, and other natural resources of the country furnished the manufacturers with cheap raw materials. The freedom of interstate commerce and absence of restrictive traditions should also be mentioned as factors contributing in no small degree to the industrial development of the country. "The mainland of the United States is the largest area in the civilized world which is thus unrestricted by customs (duties), excises, or national prejudice, and its population possesses, because of its great collective wealth, a larger consuming capacity than that of any other nation." Finally, credit should be given to the character of the people — their ingenuity, inventiveness, and energy; — qualities which were being trained and developed by an admirable system of compulsory free education.

310. Growing self-sufficiency of the United States. — Still more significant, however, than the mere physical bigness of our industries was the increasing adequacy of our production to the home demand. In the case of food products and raw materials the country had long supplied its own needs: wheat, corn, cotton, tobacco, and other agricultural products had since colonial days been raised in sufficient quantities to yield an exportable surplus; while the resources of coal, iron, copper (more recently), lumber, and other raw materials of manufacturing were just beginning to be exploited on a large scale. In the case of manufactured goods, on the other hand, we had always imported large quantities from England and Europe. Largely as a result of the restrictive war tariff the proportion of domestic manufactures consumed in the United States greatly increased — from 88 per cent. in 1860 to 93 per cent. in 1880 and to 98 per cent. in 1900. The articles imported consisted principally of the finer grades of textiles, and of luxuries. And yet even of these the domestic manufacturers were every year more nearly meeting the domestic demand. Thus — to select only one instance — the proportion

of silk goods made in the United States of the whole quantity consumed grew from 13 per cent. in 1860 to 38 per cent. in 1880, and to 77 per cent. in 1900.

311. Concentration in large establishments. — Not merely did the manufacturing industries of the United States show a rapid growth, but at the same time there took place a startling concentration of manufactures, especially along certain lines, into a relatively smaller number of establishments. This tendency had been in evidence more or less since 1850, but was greatly accelerated during the last two decades of the century. It was most marked in the case of the iron and steel industries, cotton manufactures, and leather goods, but was noticeable also in the manufacture of agricultural implements, boots and shoes, carpets, glass, malt liquors, paper, ship-building, slaughtering and meat packing, tobacco, and the textiles. A few industries, which were essentially local in their nature, showed no such tendency, such as flour and grist mills, cheese and butter factories, etc.; but with few exceptions it was the prevailing characteristic of manufactures in the United States. The extent to which this large-scale production proceeded may be presented in statistical form for two or three typical industries, as follows:

ALL MANUFACTURES IN THE UNITED STATES

	1850	1860	1870	1880	1890	1900
Average product of each establishment	$8,280	$13,420	$13,420	$21,100	$28,070	$25,418
Average capital of each establishment	$4,330	$7,190	$6,720	$10,960	$19,020	$19,269
Average number of employees of each establishment	7.7	9.3	8.1	10.6	13.8	10.4

COTTON GOODS

	1850	1860	1870	1880	1890	1900
Number of establishments	1094	1091	956	1005	905	1055
Average product of each establishment	$55,500	$106,000	$185,600	$209,900	$296,000	$321,500
Average capital of each establishment	$68,000	$90,000	$147,000	$218,000	$391,000	$443,000
Average number of employees of each establishment	84	112	142	185	242	287

IRON AND STEEL

	1850	1860	1870	1880	1890	1900
Number of establishments	468	542	726	699	699	668
Average product of each establishment	$43,600	$97,000	$275,000	$419,000	$683,000	$1,203,500
Average capital of each establishment	$46,700	$82,000	$161,000	$295,000	$591,000	$858,000
Average number of employees of each establishment	53	65	103	197	250	333

312. Advantages of large-scale production. — This concentration of manufactures into large establishments was caused by certain distinct advantages enjoyed by large-scale production. Foremost among these were economies of various kinds. The operation of a business on a large scale permits the use of expensive and complicated machinery, its constant

employment, the minute division of labor, the employment of more skilled management and superintendence, the utilization of by-products, and the economical purchase of raw material and marketing of the finished product. The modern factory requires a large investment in expensive machinery; from the statistics just presented it is seen that while the average number of employees per establishment grew about thirty-five per cent. between 1850 and 1900, the average investment of capital increased over three hundred per cent. This indicates that the tendency in manufacturing was towards machine production. In a large establishment every machine is utilized to the utmost, there is no needless duplication of machinery such as would occur for several small plants, while expensive machines to carry on relatively small processes can be profitably installed. So, too, in the labor employed a high degree of specialization is possible, and the peculiar aptitude of each man is given scope to develop itself. In experimenting with and inventing new machinery and methods the large establishment also has an advantage.

One of the most striking economies is effected in the utilization of waste products, which is profitable only when the industry is managed on a large scale. This was carried farthest in the oil-refining and meat-slaughtering industries, but was also practised extensively in the iron and steel, lumber, paper, textile, cottonseed oil, leather, brewing, and other industries. In the large meat-packing houses, for instance, much that had formerly gone to waste, as hoofs, horns, bones, hair, bristles, fat, intestines, and blood, was now converted into soap, glue, fertilizers, albumen, knife handles, combs, buttons, oils, oleomargarine, glycerine, etc.; but many of these by-products remained unutilized even at the end of the period in houses of small capacity.

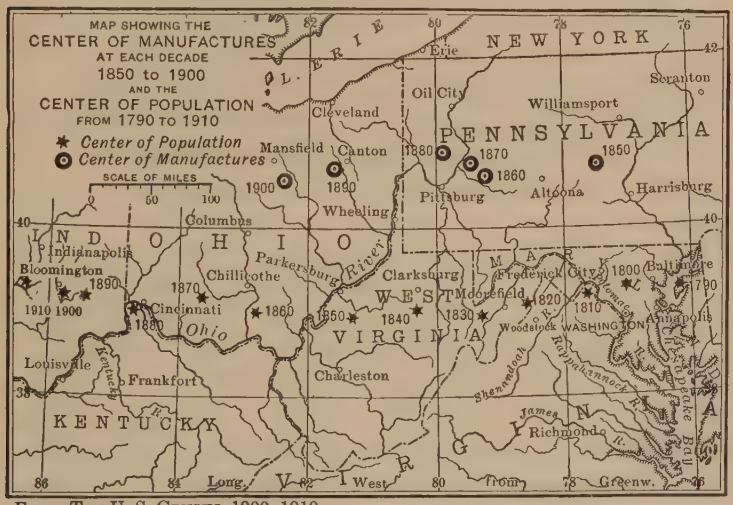
313. The localization of industries. — The manufactures of the United States were confined chiefly to that part of the country north of the Potomac and Ohio and east of the Mississippi rivers, and were especially dense in southern New Eng-

land, southern New York, New Jersey, and eastern Pennsylvania. This predominance in the northeastern section of the country may be accounted for on historic and economic grounds which have already been described; but there were asserting themselves at the same time other industrial tendencies which are less obvious but no less interesting. These were the localization of industries in particular States and cities, the specialization of certain localities, and the shifting of industrial centers. The following industries were highly localized in 1900, more than one half of the total value of the products in the United States being manufactured in the specified States: collars and cuffs and leather gloves and mittens in New York; plated and britannia ware, clocks, and brassware in Connecticut; oyster canning and preserving in Maryland; coke and iron and steel in Pennsylvania; safes and vaults in Ohio; whips in Massachusetts; and vinous liquors in California. Within these States the localization in cities was carried still further: thus 85 per cent. of the collars and cuffs were manufactured in Troy, N. Y.; 64 per cent. of the oyster canning was carried on in Baltimore; 54 per cent. of the gloves were made in the adjoining cities of Gloversville, and Johnstown, N. Y.; 48 per cent of the coke in Connellsville, Pa.; 48 per cent. of the brassware in Waterbury, Conn.; and 46 per cent. of the carpets in Philadelphia. Not only did these and other industries become localized in a few places, but certain cities specialized in particular industries, devoting themselves almost exclusively to the production of one thing. More than 75 per cent. of the entire number of wage-earners in the following cities in 1900 were engaged in the specified industry: South Omaha, Neb., slaughtering and meat packing; McKeesport, Pa., iron and steel; East Liverpool, Ohio, pottery; Fall River, Mass., cotton goods; Brockton, Mass., boots and shoes; Gloversville, N. Y., gloves.

314. Causes of localization. — The tendency towards localization has been apparent ever since the beginning of colonial manufactures, and not merely in this country but in other

places as well. While sometimes it seems as though the choice of a location for a young industry were purely fortuitous, it will generally be found to have been determined by economic causes. The following seven advantages, as given in the census of 1900, may fairly be assigned as the general causes: (1) nearness to materials, as in the case of the paper, tanning, slaughtering, pottery, oyster canning, and tobacco industries, each of which was situated in the vicinity of the chief source of supply of the raw materials. (2) Nearness to markets; this was best illustrated by the growth of manufactures in the neighborhood of centers of population, especially of commodities which would not bear transportation. (3) Water power; while of great influence in the early days of manufacture, this factor had been steadily diminishing in importance, though the growing use of electricity as a motive force was again bringing it into prominence in the last two decades. The presence of coal, on the other hand, was a decisive factor in many industries. In an age of machinery mechanical power is the dominant factor, and manufactories multiply where waterfalls and coal fields abound. (4) A favorable climate; thus Fall River and New Bedford offered exceptional advantages for the manufacture of cotton by reason of their even, moist climate. (5) A supply of labor; owing to this fact it was difficult to establish manufacturing industries in the West and to a less degree in the South, because of the inadequate or inefficient labor supply. (6) Capital available for investment in manufactures; while outside capital can usually be obtained, a supply of local capital is often essential; the growth of the cotton industry in New Bedford about 1850 has been ascribed to the supply of local capital set free there by the decline of the whaling industry. (7) The momentum of an early start; the leadership of Lynn, Mass., in the boot and shoe industry, which dates from 1750, was probably due chiefly to this cause. Once begun, the localization of industries tended to become constantly greater and was overcome only by potent economic forces.

315. The migration of industries. — As the country grew new industries were established in the newer sections; the center of manufactures, as well as the center of population, moved steadily westward. The filling of the middle West and the growth there of large cities provided the necessary labor supply, markets, and capital, while new sources of supply of raw materials hastened the establishment of industries rivaling those of the older sections of the country.



From THE U. S. CENSUS, 1900, 1910

The very forces which made for localization tended also to shift the industry when these forces showed themselves more strongly in other localities. Thus the manufacture of agricultural implements has advanced from New York to Ohio and to Illinois, following the retreating hardwood forests and agricultural interests. In the cotton industry a striking change took place in the rapid advance of the southern States, especially North and South Carolina and Georgia; the value of the cotton products of these three States constituted 6.2 per cent. of the total in 1880, and 22.6 per cent. in 1900.

During the same period the capital invested in southern cotton mills increased from $21,900,000 to $125,000,000, the number of spindles from 610,000 to 4,300,000 and the consumption of cotton from 205,000 to 1,500,000 bales. This growth was largely at the expense of the New England mills, and still more of those in Europe, and was due to the proximity of the raw material, the excellent water power, and the supply of cheap labor. The migration of the leather industry from Massachusetts and New York to Pennsylvania and the Central and Western States, which began about 1880, was due to the exhaustion of the tan-bark supply. Slaughtering and meat packing, which had its beginning in Cincinnati about 1818, moved gradually westward, following the opening up of new grazing and fattening regions for cattle and swine.

316. The industrial development of the South. — A most significant feature of the material development of the United States during the last twenty years of the nineteenth century was the marvelous industrial revolution in the South. As a result of this we shall probably soon see a considerable shifting of the center of manufactures to the Southwest. Although cotton growing was for a generation after 1860 practically the only interest of the South, and remains still the chief one, manufacturing began about 1880 to reach that section. The value of the manufactured products increased from $338,792,000 in 1880 to $1,184,398,000 in 1900, and the capital invested in manufactures from $192,949,000 to $953,850,000 during the same period. The greatest development naturally took place in cotton manufactures, nearly half of the cotton factories of the United States being situated there in 1900, and consuming 40 per cent. of the raw cotton, practically all of which dated from 1880. The iron industry promised to make even greater strides: in North Carolina, Tennessee, and especially in Alabama, abundant supplies of coal, iron, and limestone lie so near one another that pig iron can be made more cheaply there than anywhere else in America, and probably in the world. The production of southern pig iron increased from 397,000 tons

in 1880 to 2,500,000 tons in 1900; and great iron foundries, steel plants, rolling and rail mills sprang up at Birmingham and elsewhere with marvelous rapidity. In 1901 immense deposits of oil were discovered in Texas, furnishing a cheap fuel and illuminant. The splendid forests of hard pine and other timber throughout the South were reached, cut, and sold, and lumber mills were started at various points. Manufactures in the southern States had to depend on the labor of the poor whites; the negroes did not show the persistence necessary for factory labor, and the foreigners who migrated to that section preferred to work on farms or to run stores rather than work in factories. Child labor was largely employed, and the industrial transition brought up economic problems which were burning questions in New England thirty to forty years before, and in old England thirty to forty years earlier still.

317. The system of interchangeable mechanism. — From the earliest times the American producer has endeavored to supplement the relative scarcity of labor, as compared with the wealth of resources to be exploited, by the introduction of labor-saving machinery. In no branch of mechanical improvements has the genius of the American inventor shown itself more strikingly than in the development of the so-called system of interchangeable parts. The essential principle consists in making each part of a machine precisely like the same part in every other machine. Under such a system it is possible to make even the most intricate and delicate part of a machine in large quantities on the wholesale plan and thus greatly reduce their cost of production. The different parts are then "assembled" at a single operation. On the side of the consumer the great advantage, apart from the lessened cost, lies in the fact that the wide use of complicated and expensive machines is made possible, for in case of injury a broken piece can be replaced with perfect accuracy, by simply ordering a duplicate by number. This system seems to have been a distinctly American invention, having been

first introduced by Eli Whitney in the manufacture of fire-arms. Its greatest application probably took place in the sewing-machine, but it revolutionized the manufacture also of ammunition, locomotives and railroad machinery, watches, clocks, and agricultural machinery. Not until after the exhibition of some American machinery at the World's Fair in London in 1851 does the system seem to have been generally introduced into Europe.

Equally important was the standardization of machinery and parts. In the manufacture of screws or iron beams, for example, certain dimensions and sizes, which were best adapted for general use, were selected as standard sizes, and these were then turned out in large quantities by automatic machinery. Odd sizes and special designs could generally be obtained only by special order. In this manner cheapness and rapidity in filling an order were secured, while a broken part could be obtained from any firm making or handling the standard sizes. Such a system was not possible until measuring instruments of exceeding accuracy had been invented, but it now spread rapidly. Its international application was rendered difficult by the existence of two standards of measurement — the metric system on the continent of Europe and of feet and inches in England and America. For the successful invasion of the foreign markets by our manufacturers it would be desirable to have the metric system adopted in the United States.

318. Growth of patents. — One of the unexpected results of the Civil War was the impulse given to the invention and use of machines designed to economize human labor; from 4363 patents in 1860 — the high-water mark up to that time — the number rapidly grew to 8874 in 1866. In 1869 the number of patents issued reached 12,957, which was not again exceeded until 1881. Writing in 1865, Peto, a keen English observer, made the following comment on this tendency: "Mechanical contrivances of every sort are produced to supply the want of human hands. Thus we find America

producing a machine even to peel apples; another to beat eggs; a third to clean knives; a fourth to wring clothes; — in fact, human hands have scarcely been engaged in any employment in which some cheap and efficient labor-saving machine does not now to some extent replace them."

The number of patents grew to 26,499 in 1900, which was the largest number ever recorded for a single year up to that time. While not all of these applied to the art of manufac-

UNITED STATES PATENT OFFICE, WASHINGTON

In this building may be seen thousands of models and drawings, representing patented inventions. In 1921 almost 40,000 patents were granted.

turing, they influenced its growth and called into existence a number of new manufacturing industries. Some of those which date practically since 1880 were as follows: bicycles and tricycles, electrical apparatus and supplies, dynamite and smokeless powder, chemical fire extinguishers, glucose, oleomargarine, fountain and stylographic pens, phonographs and graphophones, cash registers, rubber goods, typewriters and supplies. Not only were the mechanical and agricultural in-

dustries in many cases revolutionized, but the means of communication, transportation, trade, and even social intercourse were greatly modified or changed. The improvements in the telephone, the invention of the typewriter and the linotype machine, of the cash register and of the recording adding machine, of various medicines and serums, of the steel frame building, electric lighting, the gasoline engine, the automobile, wireless telegraphy, etc., serve to suggest some of the numerous points at which the people's lives were affected by the inventions patented during the last generation. Many extensive industries were built up on the basis of patents, or old ones were completely revolutionized; such were the iron and steel, textile and railway industries, the manufacture of sewing-machines, rubber goods, wood pulp, photography, and stereotyping and electrotyping. While in some of these industries American inventors simply improved upon processes already in use in other countries, most of them were original and new. The American inventor not merely improved the methods of making old things; in many instances he produced absolutely new commodities and devised original ways of manufacturing them.

319. Motive power in manufactures. — The modern factory depends for its motive power no longer upon the unassisted muscular strength of man, but upon the energy derived from steam or water power, which man directs instead of furnishing. Consequently, the progress of manufactures in a country can be measured better by the amount of power which they utilize than by the number of workmen employed or even the volume of goods produced. Tested by this standard the United States made great advances during this period. In this connection, David A. Wells wrote: "When the historian of the future writes the history of the nineteenth century he will doubtless assign to the period embraced by the life of the generation terminating in 1885 a place of importance second to but very few and perhaps to none. . . ; inasmuch as all economists are agreed that within the period named man in

general has attained to such a greater (*sic*) control over the forces of nature, . . . that he has been able to do far more work in a given time, produce far more product" than was possible at the beginning of the period. The increase in labor force due to the increased use of steam was estimated by Mr. Wells at three hundred-fold, and this notwithstanding the relative wastefulness of the existing steam-engine.

The number of horse power grew from 2,346,142 in 1870 to 11,300,081 in 1900. If this power could be expressed in terms of man power it would show an addition to our productive capacity which would make the genii of Aladdin's lamp appear as mere shadow men. The tendency of machine production to concentrate in large establishments is shown by the great increase in the average horse power per establishment, which grew from 9 in 1870 to 59 in 1890 and 67 in 1900. At the same time the tendency toward great operations and the use of large and powerful machinery, which was characteristic of our industrial development, was illustrated by a similar increase in the number of horse power per machine.

320. The textile industries. — The progress of manufacturing can best be traced by noting the phenomenal development in a few of the leading industries. In the magnitude of the interests involved the first place is taken by the textile industries, as will be seen in the following table:

Year	Number of Establishments	Capital	Number of Wage-earners	Value of Products
1860	3,027	$150,080,852	194,082	$214,740,614
1870	4,790	297,694,243	274,943	520,386,764
1880	4,018	412,721,496	384,251	532,673,488
1890	4,276	767,705,310	517,237	759,262,283
1900	4,312	1,042,997,577	661,451	931,494,566

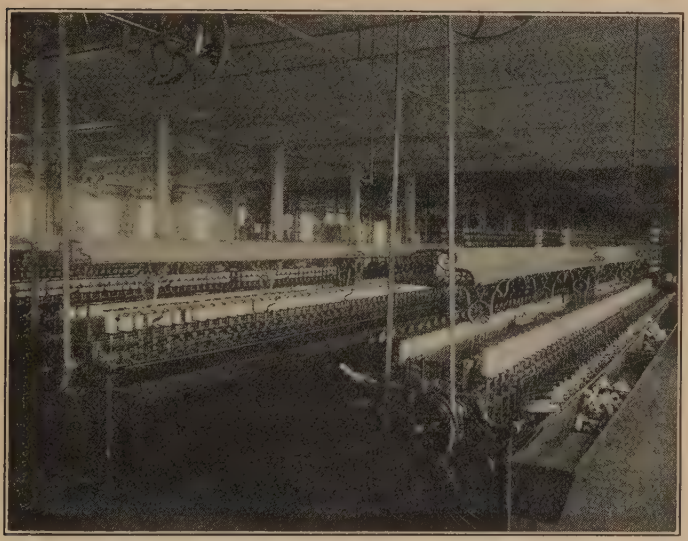
Of the different branches of the textile industry, the manufacture of cotton ranked first in importance. Almost destroyed

during the Civil War by the cutting off of the supplies of raw cotton, whereby two thirds of the spindles in the country were rendered idle, it quickly recovered after that event. In the forty-year period, 1860–1900, the number of spindles in operation and the amount of raw cotton consumed increased sixfold. This same period witnessed a much slower growth in the woolen manufactures, the value of the products about doubling in that interval. The most phenomenal development, however, was seen in silk manufactures, the value of whose products increased from $6,000,000 to $107,000,000. While the silk manufacture is the oldest branch of the textile industries in the United States, it has always suffered from a lack of raw materials. The invention of the sewing-machine led to a demand for sewing silk, and in 1852 the production of "machine-twist" was begun, which practically marked the beginning of the silk manufactures in this country. Manufactures of spun silk, ribbons, dress goods, etc., were commenced during or after the Civil War. Other important textile industries were carpets, hosiery, and knit goods, and dyeing and finishing.

321. Improvements in the textile industry. — Great improvements were made in all departments of the cotton industry after the Civil War; steam ginneries began to be substituted for the older ones run by horse or mule power; the cottonseed began to be used for oil and fertilizers. The main improvements, however, took place in the processes of manufacture itself.[1] Textile manufacturers in the United States have always enjoyed a certain advantage over English

[1] The great advance made in cotton manufacturing is well illustrated in the following quotation from the Census of 1880 (Vol. IV, p. 941): "At the Atlanta Cotton Exposition of 1881 were to be found five women from the mountain section of Georgia, spinning and weaving coarse cotton fabrics by the use of the hand-card, the spinning-wheel, and the hand-loom. They were representatives of a large section of the United States and of a very considerable population, variously estimated at from 200,000 to 300,000 in number, who have not been reached until lately by the railroad, or been able to avail themselves of modern

or European competitors in the size of the domestic market for which they produce. They have produced staple goods in large quantities for a uniform class of customers, and have thus been able to introduce the most improved and expensive machinery. On the other hand, owing to the high price of



SPOOLING ROOM, PACIFIC MILLS, LAWRENCE, MASS.

A spooling machine is a machine for winding the spun thread on spools. The work is simple, the chief task being to replace the filled spools with empty ones, and a single operative can therefore manage a number of machines.

labor here, the finer grades and those subject to a variable demand have been imported from abroad.

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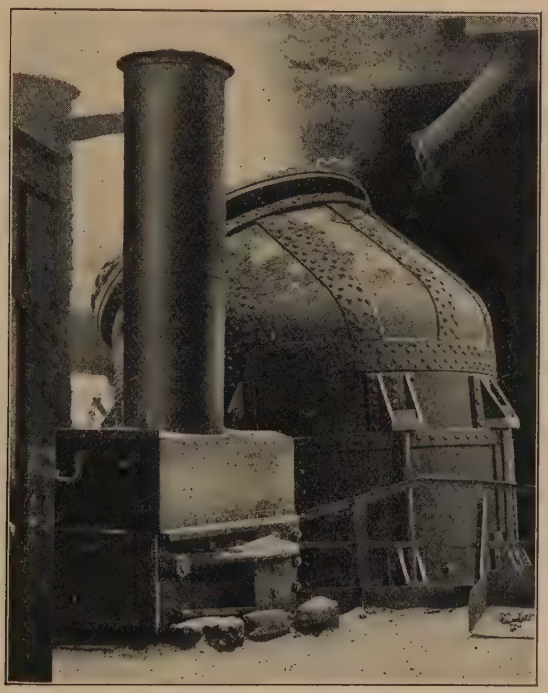
arts to any great extent. At the measure of their work, two carders, two spinners, and one weaver could produce eight yards of coarse cotton cloth in a day of ten hours. The same number of persons employed in the modern cotton factories can, by the use of machinery, with far less arduous labors, produce 800 yards of the same cloth, or one hundredfold as much."

Large as the figures of output appear, the domestic production of textile goods still fell short of the home consumption. American manufacturers, however, steadily supplied a larger and larger proportion of the home demand, until they almost fully occupied the domestic market. In comparison with other nations the United States in 1900 ranked second as a manufacturer of textiles, being surpassed only by Great Britain in the production of cotton and woolen goods and by France in silk goods. The rank of the various countries is probably shown most fairly by the number of spindles in operation; judged by this test the five leading industrial nations stood as follows in 1900: United Kingdom, 45,000,000; United States, 18,591,000; Germany, 7,156,000; Russia, 6,091,000; France, 5,039,000.

The textile industry in the United States was essentially gregarious, being largely concentrated in the New England States and Pennsylvania, New York, and New Jersey. The pre-eminence of New England, however, which in 1880 had two thirds of the capital employed in textile manufactures, was being greatly greatly affected by the rapid advance of cotton manufactures in the Southern States. The increasing use of steam was emancipating the cotton factories more and more from dependence on the water power of certain localities, and was preparing the way for that migration of the cotton factories to the South, which was to become more apparent in the next generation.

322. **Iron and steel industry.** — In no industry in the United States was the rate of growth after the Civil War so great as in the iron and steel industry. As early as 1866 the English economist Jevons wrote: "It is impossible that there should be two opinions as to the future seat of the iron trade. The abundance and purity of both fuel and ore in the United States, with the commercial enterprise of the American manufacturers, put the question beyond a doubt." Nor did this prophecy remain long unfulfilled. The amount of pig iron produced increased from 919,770 tons in 1860 to 4,295,414

tons in 1880 and 14,452,234 in 1900, while the relative increase in the production of steel was still greater — from 9044 tons in 1863 to 1,397,015 in 1880 and to 10,188,329 in 1900. The



BESSEMER CONVERTER

Before iron can be used in the manufacture of steel, various impurities must be got rid of, such as phosphorus, carbon, etc. This is done in the Bessemer converter, where the impurities are blown off by forcing a blast of cold air through the molten iron. The color of the flame indicates to the operative the condition of the metal, and at the proper moment he must stop the blast. The converter is then tipped over and the metal is poured out into the ingot moulds.

principal causes of this remarkable growth, in addition to the opening up of abundant and cheap deposits of both coal and iron, were the improvements in methods of production, such as the hot-air blast, the regenerative gas furnace, the substi-

tution of coke for anthracite coal, the introduction of the Bessemer process, and more scientific methods at every stage of production. On the other hand, the expanding demand for rails, machinery, and other steel and iron products gave a strong impetus to their manufacture.

323. Divisions of the iron industry. — No industry in the United States has shown greater rapidity of development, more extreme concentration, or larger wealth of resources than the iron and steel industry. Its evolution on a large scale did not begin until about 1887, as is seen in the following brief table:

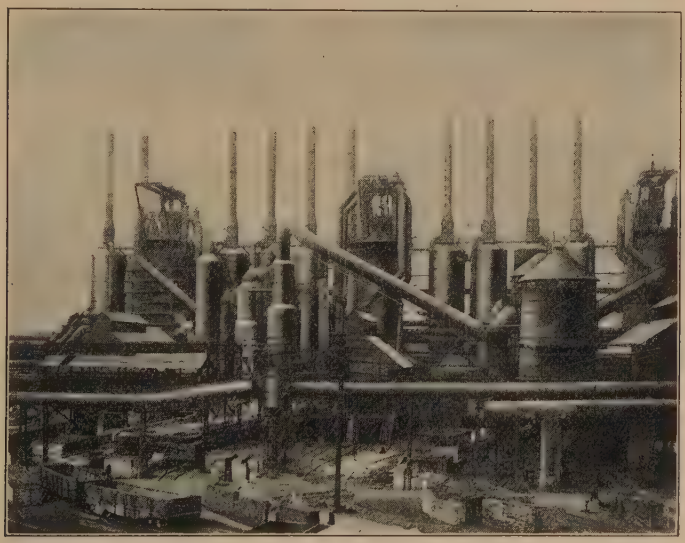
COMPARATIVE SUMMARY OF THE IRON AND STEEL INDUSTRY, 1860–1900

Year	Number of Establishments	Number of Wage-earners	Capital	Cost of Materials	Value of Products	Tons of Products
1860[1]	402	22,014	$23,343,073	$19,242,743	$36,537,259	509,084
1870	808	77,555	121,772,074	135,526,132	207,208,696	3,263,585
1880	792	140,798	209,904,965	191,271,150	296,557,685	6,486,733
1890	719	171,181	414,044,844	327,272,845	478,687,519	16,264,478
1900	669	222,607	590,530,484	522,431,701	804,034,918	29,507,860

[1] Iron forged, rolled and wrought.

The iron and steel industry falls into two general divisions: the first comprises the production of pig iron, and the second the conversion of pig iron into commercial iron and steel and the manufacture of various products. The United States had since 1890 produced more pig iron than any other country in the world; in 1900 she produced about 40 per cent. of the world's supply, or more than Great Britain and Germany combined, which held second and third rank respectively. The most striking feature of the iron industry in the United States was its concentration in large establishments, where the most improved machinery was employed. This is evidenced

by the decline in the number of establishments from 341 in 1880 to 224 in 1900, although the number of tons of pig iron produced during the same period rose from 4,295,414 to 14,452,234 tons. At the same time the average capacity of the blast furnaces increased from 25 tons per day in 1880 to 148 tons twenty years later. In one of the mammoth furnaces of



BLAST FURNACE

The ore, with limestone and coke, is smelted in cylindrical furnaces, often 100 feet in height, by means of a hot-air blast. As the iron melts, it is drawn off through an opening at the bottom of the furnace, the lighter slag being drawn off through a higher opening. The furnace is continually charged anew at the top, and sometimes runs for months without stopping. The combustible furnace gases, which were formerly allowed to escape into the open air, are now used to heat the hot-air blast and to furnish fuel for the blowing engines.

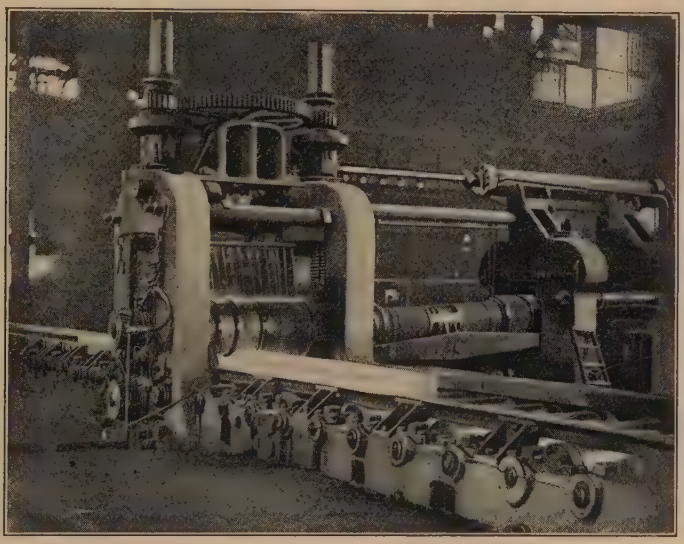
the Carnegie Company a daily production of 901 tons was obtained for the month of June, 1902. Another change took place in the fuel used; bituminous coal and coke almost completely supplanting anthracite coal and charcoal. Pig-iron production was strongly centralized in three great centers.

Pennsylvania and Ohio constituted one field in which coal was abundant and cheap, and to whose furnaces iron ore from the prolific and easily worked Lake Superior mines could be cheaply shipped by way of the Great Lakes; nearly two thirds of the pig iron was produced in these two States in 1900. Illinois formed a second field and Alabama and Tennessee a third.

324. The manufacture of steel. — The principal change that occurred in the iron and steel industry in the last generation was the substitution on a large scale of steel for iron products. In the United States less than one third of the pig iron produced in 1880 was converted into steel; in 1900 about four-fifths was so converted. Steel rails completely supplanted iron ones, only a few tons of the latter being produced in 1900. The use of steel for the construction of large office buildings, bridges, cars, wire and wire nails, is of recent growth; but in these and a thousand other products a new demand was being created for steel. Another important change in the steel industry was the process by which it was made. A revolution was effected in the industry when Bessemer steel was first manufactured in 1864 and began to displace iron in all uses where strength and durability were needed. The age of Bessemer steel, however, according to Mr. Carnegie, was in 1900 already passing away, "to be succeeded by the age of Siemens open-hearth steel."

Bessemer steel is made by running the molten iron into a converter; a cold blast of air is then blown through the metal at high pressure to eliminate the carbon. This process can be employed only with iron which does not contain more than a thousandth part of phosphorus. In the open-hearth process the pig iron is mixed with scrap iron in a brick-lined furnace, and when molten the other elements desired are added; the advantage of this method is that it permits the conversion into steel of pig iron which contains as much as 10 per cent. of phosphorus. The basic open-hearth method was thus well adapted for use in the southern States, where the ore is

decidedly impure. The steel industry also showed the same expansion and concentration into huge establishments with machinery of great capacity. The average daily capacity



ROLLING MILL

The three principal methods of working metals are founding, forging, and rolling, and of these three methods that of rolling has been chiefly instrumental in extending the use of iron and steel for structural purposes to its present enormous proportions. Rolling consists in working metal ingots into rails, bars, plates, rods, and structural shapes by passing them repeatedly when intensely hot between cylindrical rolls. Generally each set of rolls has two or more grooves, each set of which approaches more closely to the form of the finished piece than the set of grooves preceding it, and the metal is passed through these grooves in order. Commonly also several sets of rollers are employed, each set of which brings the piece closer to its final form than the set preceding. In the illustration is shown a white-hot ingot being guided to a set of rolls.

of a Bessemer converter trebled (5 to 15 tons), and that of the open-hearth furnace quintupled (10 to 50 tons), between 1880 and 1900. At the same time the total daily capacity of the steel mills of the country increased from 20,000 to 90,000 tons.

Not only did the size of the single establishment grow, but the number of hitherto separate industries combined under one organization greatly enlarged: iron and coal mines, railways and steamers, coke ovens and blast furnaces, steel plants and machine shops, were all brought together under a single head, as in the case of the United States Steel Corporation.

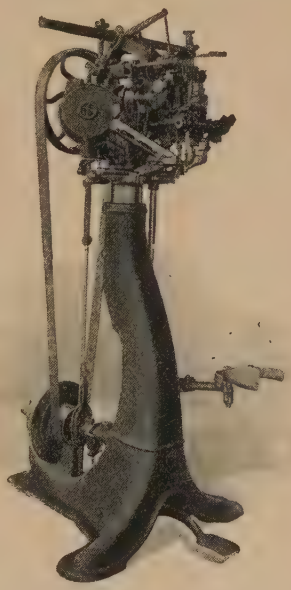
325. Other industries. — The census of 1900 enumerated 354 distinct industries; of these the 11 following turned out products with a gross value of more than $250,000,000 during the year 1900:

Iron and steel	$804,000,000
Slaughtering and meat-packing	790,000,000
Foundry and machine-shop products	645,000,000
Lumber and timber products	567,000,000
Flour-mills and grist-mills products	561,000,000
Clothing, men's	415,000,000
Printing and publishing	347,000,000
Cotton goods	339,000,000
Carpentering	316,000,000
Woolen, worsted, and felt goods	297,000,000
Boots and shoes	261,000,000

From this list it will be seen that the most important manufactures consisted in working over the raw material; the value added by the process of manufacture was not yet as great as the value of the raw material. In the younger and smaller manufacturing industries the reverse was probably true. These industries were scattered over the whole country, though four of the States were pre-eminently industrial, each showing products worth more than $1,900,000,000 in 1900: these were New York, Pennsylvania, Illinois, and Massachusetts. Only two others had a product value of over $500,000,000; namely, Ohio and New Jersey.

326. Clothing and footwear. — A brief description of two of the industries which were revolutionized during this period may be added at this point. Before 1850 the manufacture of

men's (and children's) clothing was mainly a household industry, but with the introduction of the sewing-machine into general use it was transferred to shops and factories. An especial impetus was given to the industry during the War by the great demand for army clothing. With the large influx of Russian Jews into this country in 1876 and subsequent years, the sweating system, unhappily still characteristic of the industry to this day, was introduced. Instead of a skilled tailor making a complete garment, a team of three to five persons now divided the work and produced the finished article under the task system, one man cutting out the garment, a second basting it, a third and fourth buttonholing and finishing it, while a fifth pressed it, each person being paid by the piece on a very low scale. While the price was greatly reduced and production stimulated, it was at a frightful social cost. The value of the product grew from $80,830,555 in 1860 to $209,548,460 in



Lasting Machine

The process of lasting — that is of fitting the upper part of the shoe to the sole over a last or model of the human foot — is the most important and difficult operation in the making of a shoe. A delicate and curious pulling of the leather is required to give a smooth finish, and it was long thought that this work could be done only by hand. In this machine pincers grasp and manipulate the upper leather with almost human skill and shape it on the last; it is then fastened to the insole by tacks which are fed automatically through a raceway. Without such a machine it would be practically impossible to meet the commercial demand for shoes to-day, but the work of lasting on the most expensive shoes is still done by hand.

1880, and to $415,256,391 in 1900. The manufacture of women's ready-made clothing was never so important, and prior to 1880 was confined almost exclusively to cloaks; the total value of factory products in that year was only $32,004,-794, but by 1900 it amounted to $159,339,539.

More typical of the machine methods of American manufacture was the boot and shoe industry. "Here machinery seemed to have reached its culmination. The human hand does little but guide the material from machine to machine, and the hammering, the stamping, and the sewing are all done by the tireless energy of steam." Previous to the year 1845, when the leather-rolling machine was introduced, this industry had been strictly a hand process; this invention was followed in the next ten years by the buffing and the splitting machines, and by peg-making and power-pegging machines. The greatest revolution in the industry was, however, effected by the invention of the McKay sewing-machine. From that time on improvements in all the processes of manufacture were made rapidly, even the apparently confirmed hand process of lasting being given over to machinery in the early seventies. By 1880 "the subdivision of labor had about reached its limit and the present system had been perfected." As a result of these various improvements the labor cost of 100 pairs of men's boots was reduced from $408.50 by hand labor in 1859 to $35.40 by machine in 1895. The yearly product grew from $80,750,000 in 1860 to $196,920,481 in 1880, and to $287,579,258 in 1900.

327. The war tariff. — Under the stress of the Civil War and the necessity of securing larger revenues, the financial methods of the United States were revolutionized. In addition to the issue of legal tender paper money and an immense increase in our public debt, internal revenue taxes and high import duties were made use of with a vigor rarely, if ever, equaled up to that time. From 1861, when the first additional customs duties were imposed, until 1865, "no session, indeed hardly a month of any session, passed in which some increase

of duties on imports was not made." Heavy duties were necessary in order to offset the complicated and burdensome system of internal revenue duties, which taxed domestic industries from 8 to 20 per cent. The need of revenue was the leading consideration in the passage of the later acts; but in all of them the desire for higher protection was present. The most important tariff acts of the war period were those of 1862 and 1864, which granted a degree of protection hitherto unequaled in the history of the country; under the act of 1864 the average rate on imports was raised to 47 per cent., while the average rate under the tariff of 1857 had been only 19 per cent. Opposition to high import duties almost disappeared during the war, and these rates were readily acquiesced in. Indeed, Congress spent only five days in all debating the measure, but passed it practically as presented by the Committee on Ways and Means. One of the unexpected legacies of the war was thus a highly protective tariff system, which continued to be raised even after the need of additional revenue had passed away.

328. **Attempts to reduce the tariff.** — After the war the decreased demand for revenue led to a gradual reduction of internal revenue taxes; by 1872 most of these had been abolished, leaving only those on spirits and tobacco as important features of the excise system. At the same time the national debt was being paid off with a rapidity unexampled in history. The tariff, however, remained practically unchanged; unlike the internal taxes levied in 1812, which were repealed immediately after the war, the tariff of 1864 was retained as a permanent element in our fiscal system. Duties were reduced in 1870 on a few purely revenue articles, such as tea, coffee, wine, sugar, molasses, and spices, but the system of protection was barely disturbed. By 1872 a surplus revenue of $100,000,000 a year was pouring into the treasury and further reductions became imperative. A "horizontal" ten per cent. reduction was accordingly made in that year in the tariff, but after the panic of 1873, and the resulting deficit in Federal revenues it

was easily repealed in 1875, and the previous rates restored. No further changes were made in the tariff until 1883. For twenty years, therefore, the war tariff remained practically unchanged. Manufacturers, who had prospered under the high protection thus granted, proved strong enough to resist any efforts at tariff reform, and the system of protection which thus grew up, largely by reason of the necessities of the Civil War, became a permanent part of our commercial policy.

329. Tariff changes. — In spite of the reductions in the internal revenue system, the receipts of the government increased rapidly and by 1881 there was a surplus of $101,000,000 in the Treasury. A further reduction was made in 1883 in the excise duties by lowering the rate on tobacco by one half and by abolishing some other unimportant and irritating taxes, such as those on bank deposits and capital, checks, friction matches, patent medicines, perfumery, etc. The effect on the increasing surplus was slight, and the feeling was strong throughout the country that a similar reduction should be made in the tariff duties. A tariff commission, appointed by President Arthur in 1882, recommended "substantial reduction of tariff duties" of from 20 to 25 per cent. Congress, however, in which the protectionist sentiment was strong, refused to sanction such a radical change, and in the tariff act of 1883 made an average reduction of only 5 per cent.; the principal reductions took place in those manufactures which were least affected by foreign competition. After several unsuccessful attempts at tariff revision by the Democrats, who had gained control of the House in the elections of 1884, President Cleveland at length sharply defined the issue in his annual message of December, 1887, by demanding the reduction of the tariff and the admission of free raw materials.

The elections of 1888 resulted in a victory for the Republican party, which construed it as an endorsement of their policy of high protection. Accordingly, the McKinley Act of 1890 was passed, greatly increasing the general levy of duties, from 38 to 49.5 per cent. The "pauper labor" argument

was used with great effect in the debate on this bill, and protectionism was now advocated, not, as Hamilton had argued, as a temporary aid to young industries, but as a permanent policy. The bill imposed higher protective duties upon wool, the finer grades of woolen and cotton goods, cutlery and tin plate, etc., and extended them so as to cover a number of agricultural commodities. Sugar was put on the free list, a bounty was granted on sugar produced in the United States, and reciprocity was provided for. At the same time the accumulating surplus was disposed of by new and extravagant appropriations for pensions and other purposes. This tariff policy was partially reversed by a Democratic Congress, by the passage of the Wilson Act in 1894, which placed wool, copper, and lumber upon the free list, reduced the duties on many protected commodities, and reimposed a revenue duty upon raw sugar. The average level of duties under this act was 39.9 per cent. It also contained a clause providing for an income tax of 2 per cent. on all incomes over $4000, but this section was declared unconstitutional. The victory of the Republicans two years later led to another revision of the tariff and the passage of the Dingley tariff of 1897, which raised the general average of duties to the highest point since the Civil War, namely, 57 per cent.

330. Commercial policy and reciprocity. — The keynote of our commercial policy was from the very beginning the reservation of the home market for the domestic manufacturer and the exclusion of foreign competition. Especially after the highly restrictive period of the Civil War did this play an important rôle. Such a policy was necessarily a one-sided one, and its inconvenience was more than once felt as our agricultural and other exports sought foreign markets. Spasmodic efforts had been made to secure reciprocity treaties with a few foreign nations, but little of permanent value was accomplished before 1889. In that year a Pan-American Congress met in Washington, consisting of delegates from most of the Central and South American countries. Among

other things they recommended reciprocity treaties, and the tariff act of 1890 accordingly gave the President authority to establish by treaty commercial relations on a basis of reciprocity. The basis of the policy was that the United States would admit free of duty sugar, molasses, coffee, and hides, if the nations exporting these commodities would receive on a just basis our agricultural and other products. It was designed to apply particularly to the Central and South American countries, and treaties were made with several of them; of European nations, Germany, France, and Austria-Hungary alone made such agreements. The principle of reciprocity was reaffirmed by the Dingley Act of 1897, although it was not put into practice.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXIII

The expanding population provided a growing home market, which was now definitely reserved to American manufacturers. For them the main problem was one of expansion sufficient to meet the increasing demand. This called for readjustments, improvements in processes, larger sources of raw materials, and better agencies of transportation and exchange.

1. China is an example of a nation that has made itself almost self-sufficing. Has this been advantageous or the reverse to China?

2. Compare the growth of textile manufactures in the United States and England and give reasons. [A. Ure, the Cotton Manufacture of Great Britain, II, 310; T. M. Young, The American Cotton Industry; W. J. Ashley, British Industries, 68–92.]

3. Why did France lead in 1900 in the production and manufacture of silk? [S. Trotter, Geog. of Com., 265; C. C. Adams, Com. Geog., 101, 238.]

4. Describe fully the Bessemer process of making steel. Was Bessemer the original inventor? [J. L. Bishop, II, 487; M. D. Swank, Hist. of Man. of Iron in All Ages, chaps. 45, 46.]

5. Is iron ore transported to the fuel or the reverse? Why? [W. F. Rocheleau, Geog. of Com. and Ind., 121.]

6. Name the three largest centers of the iron and steel manufacture during this period in the United States, and tell why each was important. [Trotter, 146; Adams, Com. Geog., 123–125.]

7. What advantages has steel over iron for building purposes? [Swank, 525–540; Adams, Com. Geog., 126.]

8. Describe the sweating system. Is this necessary in the clothing trade? [C. D. Wright, Practical Sociology, 246–249; W. D. P. Bliss, Encycl. of Soc. Ref., arts. Sweating System and Tailoring Trade.]

9. Trace the development of one of the important industries mentioned in sect. 325. [C. M. Depew, One Hundred Years of American Commerce.]

10. Illustrate in greater detail the economies effected by concentration in large establishments. [Twelfth Census, X, 723; Rep. of Industr. Com. I, 68, and "Economies of Comb." in Gen'l Index of Testimony; J. W. Jenks, The Trust Problem, chap. 2; H. R. Mussey, Combination in the Mining Industry.]

11. Describe some industry which owes its success to patents. [E. W. Bryn, Progress of Invention.]

12. Why was not the tariff reduced to the level existing before the war? Were there any serious attempts to do so? [F. W. Taussig, Tariff Hist., 171–193; D. R. Dewey, 396–398.]

13. Is it a desirable thing for the United States to attempt to produce everything that is needed at home? [C. J. Bullock, Intro., 347, 362; H. R. Seager, 370, 375; F. A. Walker, Pol. Econ., 509–511; C. Gide, 323.]

14. Is there a conflict of interests between the wool-growers, the manufacturers, and the importers of woolen goods? Are their interests all met by the tariff? [Taussig, Tar. Hist., 239, 258, 291, 329; E. Stanwood, Amer. Tariff Controversies in the Nineteenth Century, II, 380; C. W. Wright, Wool Industry and the Tariff.]

15. Is it a waste of energy to send raw cotton to England for manufacture and then to import the manufactured goods? [J. E. Cairnes, Leading Principles; C. F. Bastable, Theory of International Trade.]

16. Is there an economic loss involved if New England purchases its fruit from California and sends thither manufactured goods?

17. What were the reciprocity features of the tariff act of 1890? [Act of 1890, sec. 3; J. L. Laughlin and H. P. Willis, Reciprocity, chaps. 6, 7; Taussig, Tar. Hist., 278.]

18. What were the provisions of the act of 1897 relating to reciprocity? How did they compare with those in the act of 1890? [Act of 1897, secs. 3, 4; Laughlin and Willis, Reciprocity, Chap. 9; Taussig, Tar. Hist., 352; P. Ashley, Mod. Tariff Hist., part 2, chap. 8; Osborne, Reciprocity in the Amer. Tariff System, in Annals, XXIII, no. 1.]

19. What are the "infant industries" and "pauper labor" arguments in favor of protection? Are they valid to-day? [Bullock, Intro., 361; Seager, Intro, 372–375; Walker, Polit. Econ., 511.]

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CHAPTER XXIV

THE EMERGENCE OF THE LABOR PROBLEM

331. The effect of the Civil War on the labor problem. — In one aspect the Civil War was the final act in a labor struggle which dominated the history of the United States for the previous half-century — that of free versus slave labor. With the emancipation of the slaves the labor problem reached a new phase and the emphasis from this time on was placed upon the betterment of the condition of the industrial classes. Forces similar to those which had secured the freedom of the slave were now directed largely to the problem of ameliorating the condition of the wage-workers. The derangement of wages by the excessive issue of legal tender paper money, the growth of manufactures, the introduction of machinery, and the increase of foreign immigration were all combining to produce a new set of conditions and to call for corresponding adjustments. After 1860, accordingly, the labor problem assumed a new prominence.

During the war thousands of men were drawn from productive industry; upon the conclusion of peace, 1,000,000 men were under arms on the Union side. The ease with which this labor force was absorbed into the industrial organism, with little of the suffering that marked the disbandment of the Napoleonic armies, has always excited the wonder of historians. Chiefly responsible for this was the large amount of free land in the West, to which there was an unprecedented rush. In the South the problem was solved, temporarily at least, by the world's need of cotton. The change from war to peace was not made, however, without some difficulty and discontent, which found partial expression in labor agitation and conflicts.

332. The growth of population. — The population of the United States grew from 31,000,000 in 1860 to 50,000,000 in 1880, and to 76,000,000 in 1900. In spite of the large increase in absolute numbers there was a falling off in the rate of increase. As the country became more thickly settled, the economic limits of production checked the rapid growth of population. Of more serious import was the fact that the rate of growth of the native-born population declined with the influx of immigrants until it fell below that of the foreign stock. Francis A. Walker, writing in 1880, was of the opinion that in the long run immigration had not increased the population of the United States, but had merely "replaced native by foreign stock." The following table shows some of the facts connected with the growth of population during the period 1860–1900:

THE POPULATION OF THE UNITED STATES, 1860–1900[1]

Date	White	Negro	Total	Percentage of Growth of Population during Decade ending with Year	Immigration during Decade ending with Year	Percentage of Total in Towns of 8000 Inhabitants or Over
1860	26,991,437	4,441,830	31,443,321	35.6	2,598,214	16.13
1870	34,337,292	5,392,192	39,818,449	26.6	2,314,824	20.93
1880	43,402,970	6,580,793	50,155,783	26.0	2,812,191	22.57
1890	55,166,184	7,903,572	63,069,756	24.9	5,246,613	29.20
1900	66,990,788	8,833,994	76,303,387	20.7	3,844,359	33.10

[1] The column labeled "Total" contains a small number of Indians, Japanese, Chinese, and others who are not comprised in either of the two preceding columns. The population for 1870 is that given in the census of 1910, as the census of 1870 was erroneous on this point.

333. Immigration legislation. — The industrial problems of this period were greatly influenced by the rapidity and character of the immigration. On the whole this addition to the labor force was welcomed, but certain abuses developed which called for remedial legislation. Immigration declined

during the Civil War, but soon after its close was renewed with increased vigor. In 1864 an act had been passed by Congress "to encourage immigration," according to which laborers might be engaged under contract in foreign countries, their wages being pledged in advance to pay for their transportation. This law was repealed after four years, but the business prosperity of the period 1867–72 proved even more potent in attracting laborers to this country. The need of laborers was great in every line of industry; the western States were establishing immigration bureaus to aid foreigners to come and settle with them; agents of foreign steamship lines began to compete more vigorously for this developing traffic, rates were cheapened, and an immense stimulus was given to the immigration movement. By 1873 the number of aliens coming to our shores in a single year had reached 460,000. The flow was temporarily checked by the crisis of that year and the resulting depression, but in 1879 reached the enormous number of 789,000, a figure not equaled again for twenty years thereafter. The four decades, 1861–1900, saw an addition of 14,217,987 aliens to our population.

The States of New York, Massachusetts, and California passed laws regulating immigration into their territory, but these were declared unconstitutional in 1876. The first restrictive Federal legislation was an act passed in 1882 limiting Chinese immigration for ten years; two years later the restriction was made absolute. In 1882 also a law was passed forbidding the landing of convicts, idiots, lunatics, and persons liable to become a public charge, and requiring their return at the expense of the ship which brought them here. In 1885 the importation of contract labor was forbidden. The later legislation of 1891 and 1893 did not materially change these provisions; an attempt to impose an educational restriction on immigrants was made in 1897 but failed to become law.

334. Industrial effects of immigration. — Owing to the great industrial expansion of the country at this time this large addition to the labor force — for the majority of the immi-

grants were in the most productive ages — was successfully absorbed. The settlement of the West, which, however, was effected chiefly by native stock, the building of railroads, the development of the iron and steel industries, all called for large supplies of skilled and unskilled labor. Had it not been for the great addition to our population by immigration, the industrial expansion of this period could not have proceeded as rapidly as it did, for the opening up of the West drew off thousands of native Americans and left a gap in the labor supply which must have checked the growing manufactures had it not been filled by the immigrants. The improvements in the iron and steel, boot and shoe, and other industries, and the introduction of automatic machinery, made it possible to draft relatively unskilled labor into the factories. As a result of its absorption to a large extent in industrial establishments there went on at the same time a more than proportionate growth of the population living in cities, which in the course of the nineteenth century increased from about 3 to 33 per cent. of the total. Especially since the development of the factory system after 1850, and even more in the last three decades of the century, an increasing proportion of the population gravitated to the cities. This was particularly true of immigrants, who were concentrating in our industrial centers, partly because they found there friends and opportunities for immediate employment, and partly because more of them came from large cities in Europe than was formerly the case.

Up to about 1880 almost nine tenths of the immigrants were from Germany, Ireland, Great Britain, Canada, Norway, Sweden, and Denmark, and were vigorous, thrifty, quick to learn, and easily assimilated. On the whole, however, they were mostly unskilled laborers and took the lower places in the industrial organism, while the native workers moved up into higher ones. During the next twenty years the character of immigration greatly changed, large numbers coming from Austria-Hungary, Russia, Poland, and Italy. Less easily

FOREIGN IMMIGRATION TO THE UNITED STATES
1840-1901
NUMBER OF IMMIGRANTS
NUMBER OF IMMIGRANTS TO 10,000 POPULATION
(TO YEAR ENDING DEC. 31, 1855, FIGURES SHOW ALIEN PASSENGERS ARRIVED; AFTER YEAR ENDING DEC. 31, 1855, IMMIGRANTS ARRIVED.)
THOUSANDS
0
100
200
300
400
500
600
700
800
YEARS
1839-40
1840-41
1841-42
1842-43
1843-44
1844-45
1845-46
1846-47
1847-48
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1892-93
1893-94
1894-95
1895-96
1896-97
1897-98
1898-99
1899-00
1900-01

amalgamated with the native population, and bringing with them a lower standard of living, their presence gave rise to new and serious problems.

The majority of the foreign-born were unskilled laborers, and their concentration in a few occupations and in a few industrial centers greatly intensified the evils of competition and gave rise to serious problems, such as the sweating system. Almost two thirds (62.9 per cent.) of the immigrants found employment in 1900 in manufacturing and mechanical pursuits and domestic and personal service, the males in the former and the females in the latter. This concentration aggravated the problem of unemployment and threatened to reduce wages to a lower standard of living in those localities and industries where the pressure was greatest. But in the long run the new infusions were absorbed by the native population. The labor unions succeeded in enlisting many of the foreign-born laborers in their ranks, and thus prevented the reduction of the wage level to the lower standard. The evil effects of this competition were partially averted by the movement of native labor into higher pursuits which called for greater skill; while the rough, heavy manual toil was generally left for the recent immigrant.

335. The growth of a wage-earning class. — In 1880 the great mass of the people were still engaged in agricultural pursuits; as late as 1880 over 44 per cent. of that part of the population engaged in gainful pursuits were employed in farming. Nevertheless, there was a growing class of wage workers enrolled in manufacturing pursuits, comprising 16 per cent. of the working population in 1880 and 18 in 1900, of whom it was estimated that at least four fifths were employed in factories. The distribution of the manufacturing population was, however, very uneven: of the 957,059 persons recorded by the census of 1850 as employed in the manufacturing industries, three quarters were in the New England States and New York, Pennsylvania and New Jersey. In 1880 the total number was 2,732,595 and in 1900 it was 5,308,406, and the proportion of

those engaged in manufactures ran as high as 51 per cent. of the working population in industrial States like Massachusetts.

The development of manufactures and the accompanying growth of cities tended to concentrate men in larger masses for social as well as for industrial activities. As the capacity of factories increased larger numbers of operatives were brought together under one roof and management. At the same time the growing displacement of hand labor by machinery and the increased size of the business unit made the worker more dependent upon the owner of capital for his employment, and introduced new lines of social cleavage. In short, the introduction of the factory system had brought with it a set of conditions which are usually summed up under the title of the labor problem. Among these were the employment of women and children, the growth of labor organizations, the spread of conflicts between labor and capital, and the necessity for labor legislation to regulate these and other evils.

336. Composition of the labor force. — As might be expected in an industrially developed country like the United States, most of the people in the productive age groups were at work. Over 90 per cent of the men between the ages of 16 and 60 were engaged in some gainful occupation. The proportion of women between these ages, recorded by the census as wage-earners, was much smaller, since most of them stayed at home as housekeepers, but the number employed in industry steadily increased. The year 1850, when statistics were gathered for the first time, recorded the largest proportion of women in the manufacturing industries. During the next quarter century the development of industries that required heavy manual labor and physical strength, such as the iron and steel industries, called for men and there was a relative decline in the number of women employed. In the last quarter of the nineteenth century, however, other industries grew up in which women were preferred, and there was a relative

gain of women over men. In several industries where special rapidity or lightness of touch were required the women outnumbered the men, as in the manufacture of cotton-goods, hosiery, hats and caps, gloves, rubber goods, millinery, umbrellas, and similar lines. Almost half of the women at work were employed in domestic and personal service, though the tendency was away from these occupations to factory and office work.

Prior to 1870 no statistics were gathered in the United States of the number of children engaged in gainful occupations; the census of that year showed that 739,164 children between ten and fifteen years of age were thus employed, of whom 115,000 were in manufacturing establishments. During the next decade the number increased almost 60 per cent., the census of 1880 showing a total of 1,118,356 children in all occupations. The disclosure of such an undesirable development called forth restrictive legislation in most of the States, and during the next decade the number of children engaged in manufactures declined 33 per cent. But the number increased again in the next ten years, even beyond the figures of 1880, owing especially to the development of the cotton manufacturing industry in the southern States, where but little factory legislation existed as yet. In 1904 there were 1,752,187 children between the ages of ten and fifteen at work in the United States, or 18 per cent. of all children of those ages.

337. Labor legislation. — Prior to 1880 there was very little labor legislation in the United States. So long as the possibility of settling on the public lands existed, the necessity of taking active steps to protect the interests of labor had never been recognized. The government had rather been inclined to give facilities for the accumulation and profitable employment of capital, as the best expedient for promoting the development of industrial employment and the good of the community. The labor legislation previous to the Civil War was practically confined to the subjects of imprisonment

for debt, mechanics' liens, the education of children employed in factories, and similar matters. In 1866 Massachusetts[1] took the lead in the direction of greater legislative protection to the working classes by the passage of an eight-hour law for children under fourteen years of age, though this was un-

BREAKER BOYS AT A COAL MINE IN KINGSTON, PA.

After being mined, the coal is hoisted to the top of a "breaker" and then passes down chutes to the railway cars. On the way down the slate is picked out by breaker boys, and by means of screens the coal is cleaned and sorted into various sizes.

fortunately changed to ten hours the following year. A little later (1869) an act was passed providing for the establishment of the first bureau of statistics of labor. Other laws followed, fixing the hours of labor for women and for children under eighteen years of age at sixty per week, and providing for factory inspection and the safe-guarding of dangerous machinery. Similar legislation was enacted in other States,

[1] Ohio had passed a temporary ten-hour law for women and children under eighteen years as early as 1852.

directed for the most part to protecting the interests of the weaker members of the industrial body; but the efficient administration of the laws followed their enactment rather tardily. Of legislation in favor of adult male workers there was practically no sign until toward the very end of the period. The redress of their grievances was left to them to obtain by their own efforts. In this fact lies the keynote of the history of labor during this period, and one of the causes for the organization of labor.

The very qualities which made the American workman such an efficient producer disinclined him to rely upon the government to improve his condition, but led him to trust rather to his own efforts for self-help. Government interference was accordingly not invoked to regulate the freedom of the wage-contract or of employment, which were regarded as constitutional rights; but legislative protection was extended to the working classes by factory inspection and legislation, by laws regulating child labor, hours and conditions of labor. Down to 1900 about half the States passed factory acts regulating the conditions of labor in factories and providing for their enforcement by the appointment of factory inspectors. These laws generally provided for sanitary conditions and sufficient air space; for the health and safety of the employees against fire, the unhealthfulness of the work, and the danger from machinery; and for other forms of protection to the life, well-being, and morality of the employees.

Laws limiting the number of hours of labor were passed by the Federal government and some fifteen States for those engaged on public works. Attempts to fix the hours of labor in private industries for adult men were generally held unconstitutional, except for especially unhealthy or dangerous occupations such as bakeries, mines, smelters, etc. On the other hand, the length of the working day for women and children was regulated in about twenty of the States.

338. Labor organizations. — The individualistic character of American law has led the courts generally to declare un-

constitutional the well-meant endeavors of our legislatures to protect the working classes by statute. The American workman has therefore been forced to depend largely upon his own efforts for protection and improvement. The growth of labor organizations has proceeded *pari passu* with the industrial development of the country, and has been especially rapid since 1860. The Civil War subordinated the labor struggle to the interests of the larger conflict taking place, but upon its cessation various problems presented themselves for solution. The issue of government paper money, which had greatly depreciated, called for a readjustment of the wage contract, while the absorption into the ranks of peaceful industry of the disbanded soldiers was not carried through without difficulty. The organization of the wage-earners was occasioned immediately by the rise of prices and the cost of living which followed the issue of greenbacks. The table on page 365 shows how sharply prices advanced and how much wages lagged behind during the period 1862–66. When the war broke out there was practically no organization of labor in the United States; four national unions had a nominal existence, but the panic of 1857 had nearly eliminated the local unions. The failure of wages to rise with prices, however, led to their organization again on a larger scale. During the later years of the war several of the strongest national unions were formed: the locomotive engineers organized in 1863 and in the following decade and a half their example was followed by the cigar-makers, bricklayers, railroad conductors, iron and steel workers, and granite cutters. This period witnessed a considerable advance in the character and strength of the unions, as well as in the public appreciation of their aims. By 1869 they were sufficiently powerful to obtain the passage of an eight-hour day by Congress for all Federal employees, although it remained for many years practically a dead letter.

339. The Knights of Labor. — The final step in the organization of labor, that of uniting all union members in the United States in one great association, was also taken during

this period. Up to this time the unions had been composed of men in the same trade or occupation, but now the effort was made to bring all men of any trade whatsoever into the same organization. The first attempt was made in 1866 by the National Labor Union, which had only a brief existence, being completely wrecked in 1872 on the rock of politics. More successful was the organization known later as the Knights of Labor. Organized in 1869 as a secret society by Uriah S. Stevens, a Philadelphia garment cutter, it grew at first but slowly. The mystery which surrounded it, even the name being kept a secret, exposed it to attacks and misrepresentation, so that in 1879 the element of secrecy was abolished. The objects declared in the preamble were "to bring within the folds of organization every department of productive industry, making knowledge a standpoint (*sic*) for action, and industrial and moral worth, not wealth, the true standard of national greatness." They wished "to secure to the workers the full enjoyment of the wealth they create, sufficient leisure in which to develop their intellectual, moral, and social faculties, all of the benefits, recreation, and pleasures of association." To obtain these they demanded, among other things, the referendum, the establishment of bureaus of labor statistics, co-operation, reserving of public lands for actual settlers, the abrogation of unequal laws, a weekly pay-day, mechanics' lien laws, abolition of the contract system of labor on public works, substitution of arbitration for strikes, prohibition of the employment of children under fourteen years of age, the eight-hour day, etc. In 1880 this was the most important labor organization in the United States; in 1886, the period of its greatest growth, it claimed a membership of 730,000. In that year it entered upon a series of disastrous strikes; later it came into conflict with trade-unions which had not joined its ranks; and finally it became entangled in politics. As it lost in power and numbers its place was taken by the American Federation of Labor.

340. American Federation of Labor. — This organization

was formed in 1881, with a membership of 262,000, by a number of unions which had become dissatisfied with the rule of the Knights of Labor. The platform adopted did not differ much from that of the Knights, but the basis of organization was essentially different. Whereas the government of the earlier organization was highly centralized and the order itself was composed of district assemblies with little local autonomy, into which workers in any trade were admitted, the Federation of Labor was its antithesis on all these points. It was a "confederation of trade and labor unions," each trade being organized separately, and the unions alone being represented in the national body. Great care was taken not to interfere with the local autonomy of the constituent unions, only matters of general interest coming before the national body. It grew steadily in influence, which was generally conservative, avoided political entanglements, and saw its membership increase to 200,000 in 1890 and to 550,000 in 1900. The railroad unions stood outside the American Federation of Labor with a membership of 125,000 in 1901. Probably ten to fifteen per cent of the working population was enrolled in labor organizations by the end of the century.

341. Industrial disturbances. — While trade-unions in the United States have never been formed purely, or even primarily, as strike organizations, this method of enforcing their demands was soon resorted to as they became conscious of their strength. Yet as late as 1874 an American writer could say: "Strikes in this country have not been very serious nor long protracted." Indeed, according to the only available statistics, up to 1867 there were only three years in which more than ten strikes had occurred; after that time, however, only one year showed a smaller number than ten. A number of strikes were inaugurated in 1872 and 1873 by the Grand Eight-hour League, which were unsuccessful except in the case of the building trades of New York City. The crisis of 1873 and the resulting depression caused great industrial disturbances, but on the whole the time was not prolific of strikes.

Sooner or later, however, the changes which had taken place in our industrial development, the growth of large capitalistic industries and of the factory system, were bound to result in a struggle of organized labor with capital.

The railroad strikes of 1877 were the first important exhibition of the growing power of labor, and directed public attention forcibly to the industrial problems involved. In that year strikes occurred on the Baltimore and Ohio, the Pennsylvania, and other railroads, which by reason of their magnitude and their far-reaching effects have become historic. Reductions had been made in the wages of the employees to offset the decline in business after the crisis of 1873, the tonnage and length of freight trains had been increased, and various other causes for dissatisfaction on the part of the employees had occurred, which finally led to widespread strikes on a number of lines, but especially on the two systems named. Violence was used, property destroyed and armed conflicts took place between troops and strikers, resulting in considerable loss of life. The country awoke to the fact that our growing industrialism had brought with it serious problems as well as increased wealth.

Strikes became prominent in the United States as the system of capitalistic industry developed. The table on page 429 presents the most important facts for the twenty years, 1881–1900, in this connection. It will be noticed that there was a relative decrease of strikes after the high-water mark was reached in 1886. In that year there were a number of disastrous strikes, accompanied by violence, destruction of property, and much bad feeling; these were inaugurated chiefly by the Knights of Labor, which lost much of its power after their failure. After that the labor unions were much more conservative in the use of the strike. As they grew in strength their organization improved and they came under the control of more intelligent leaders. In the most strongly organized trades strikes were relatively fewer, but were more apt to be successful than in the weakly organized industries.

STRIKES AND LOCKOUTS IN THE UNITED STATES, 1881–1900

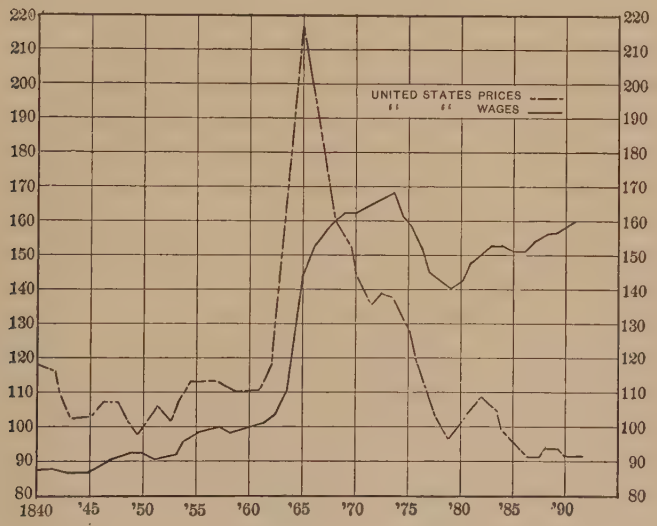
Year	Strikes and Lockouts	Establishments Involved	Employees Involved	Wage Loss of Employees	Loss of Employers	Total Loss	Per cent of Employees Involved in Strikes which		
				(In Thousands of Dollars)			Succeeded	Partially Succeeded	Failed
1881	477	2,937	130,176	3,391	1,926	5,317	42.9	13.5	43.6
1882	476	2,147	158,802	10,330	4,381	14,712	29.6	4.6	65.8
1883	506	2,876	170,275	7,343	4,993	12,336	36.8	11.4	51.8
1884	485	2,721	165,175	9,088	4,033	13,122	35.9	3.4	60.7
1885	695	2,467	258,129	11,564	4,844	16,408	47.5	9.8	42.6
1886	1,572	11,562	610,024	19,273	14,307	33,580	38.5	14.6	46.9
1887	1,503	7,870	439,306	20,794	9,518	30,312	33.6	7.0	59.4
1888	946	3,686	162,880	7,477	7,726	15,204	27.8	7.5	64.6
1889	1,111	3,918	260,290	11,789	3,243	15,033	28.9	25.1	46.0
1890	1,897	9,748	373,499	14,833	5,621	20,454	45.1	13.8	41.1
1891	1,786	8,662	329,953	15,685	6,793	22,478	27.0	7.7	65.3
1892	1,359	6,256	238,685	13,628	6,840	20,469	29.6	7.9	62.5
1893	1,375	4,860	287,756	16,597	4,440	21,038	23.4	15.8	60.8
1894	1,404	9,071	690,044	39,168	19,964	59,133	17.8	20.8	61.4
1895	1,255	7,343	407,188	13,836	5,656	19,492	39.9	11.1	49.0
1896	1,066	5,513	248,838	11,789	5,661	17,450	41.4	14.3	44.3
1897	1,110	8,663	416,154	18,052	5,166	23,269	38.9	37.3	23.8
1898	1,098	3,973	263,219	10,917	4,835	15,753	43.6	9.4	47.1
1899	1,838	11,640	431,889	16,643	7,822	24,465	54.5	14.3	31.2
1900	1,839	11,529	567,719	34,478	14,879	49,357	28.8	38.8	32.4
Total	23,798	127,442	6,610,001	306,683	142,659	449,342	35.0	16.7	48.3

Over one third of all the strikes occurred in the building trades, in the coal and coke industry, and in the manufacture of metals and metallic goods. The most prolific cause of strikes was naturally the demand for increase of wages; over 58 per cent. involved the question of wages or hours; if to these be added the sympathetic strike, strikes against the employment of non-union men, and for recognition of the union, two thirds of all strikes during these twenty years are accounted for.

342. Wages. — One of the claims of organized labor is that as a result of their efforts wages have been raised. Whether this is true or not, it can hardly be disputed that the general tendency of both nominal and real wages in the United States during the entire history of the country has been upward. Owing to the derangement of the currency during and after the Civil War the movement during the period between 1860 and 1880 cannot be altogether satisfactorily stated. While the immediate effect of the currency inflation was to depress wages relatively, since the prices of all commodities for which the workingman had to spend his earnings rose so much more rapidly than wages, by 1866 the workingman had regained all he had lost during the war. "The year 1866," says Professor Adams, "ushered in a new epoch, during which, it is no exaggeration to say, the American workingman advanced in a manner unprecedented in this country in which steady progress has been the rule since the establishment of the Union." The crisis of 1873 caused a temporary fall in wages and an increase in unemployment, but by 1880 wages had reached a higher point than ever before. According to the Aldrich report, which in spite of serious defects of method affords the best data for present purposes of comparison, relative wages averaged according to importance rose from 100 in 1860 to 143 in 1880; on the same basis they had been 82.5 in 1840.

The decade 1880 to 1890 was one of great prosperity, except for a short period of depression in 1884, and the course

of wages was steadily upward. During the long-continued industrial depression which followed the panic of 1893, wages declined somewhat, and there was considerable unemployment and distress among the working people; but the year 1898 saw the beginning of a period of unexampled prosperity, as a result of which wages have reached the highest point ever attained in the United States, while unemployment has been reduced to a minimum. Continuing the calculations of the Aldrich report, we find that relative nominal wages rose from 143 in 1880 to 168.2 in 1890, and 187 in 1903.



WAGES AND PRICES

When prices rose rapidly during the Civil War, wages lagged behind and did not overtake prices until after the war was over. But during the succeeding period of falling prices, the wage-earners were able to maintain wages at nearly the same level.

343. Relation of wages to the cost of living. — Statements as to changes in wages are, however, comparatively meaningless unless supplemented by statistics of prices; by comparing the two we can determine whether the condition of the work-

ing classes has improved or not. Taking 1860 as the base and calling prices in that year 100, the Aldrich report shows that the relative wholesale prices of 223 articles, averaged according to importance, had risen in 1880 to 103.4; in 1840 they were 98.5. By 1890 they had fallen to 85.7, but in 1903 were back to about the 1880 figure. That is to say, while prices had risen 3 per cent. in the forty years after 1860, wages had risen 87 per cent. It should be said, however, that rents, which increased greatly, were not included in these figures; further, that the greatest rise occurred in food stuffs, which comprise about 45 per cent. of the expenditures of an ordinary workingman's family, and lastly that no account was taken of unemployment in these statistics. But even after making allowances for these facts and for errors in the methods of calculating the changes, it is clear that a vast improvement took place in the economic condition of the great body of wage-earners. The artisan in 1900 was able either greatly to improve his standard of living over what it had been in 1860, or, on the same standard, to save almost a third of his wages. It is a matter of common observation that he used his increased earnings for both purposes.

At the same time, the hours of labor were appreciably shortened: in 1860 the average working day was eleven hours; by 1880 this had been reduced to slightly over ten hours. At the last named date only 26.5 per cent. of the recipients of regular wages worked in excess of ten hours per day as compared with 81 per cent. in 1830. By 1903 the working day was decreased to 9.6 hours, thus bringing the trade-union ideal of a universal eight-hour day appreciably nearer. The material progress of the people can further be fairly accurately gaged by their consumption of certain semi-luxuries, like tea, coffee, sugar, tobacco, beer, etc., all of which showed a steady increase. Thus in the United States between 1871 and 1901 inclusive, the per capita consumption of coffee increased from 7.91 to 10.45 pounds, that of sugar from 36.2 to 71.9 pounds, that of malt liquors from 6.10 to 15.98 gallons,

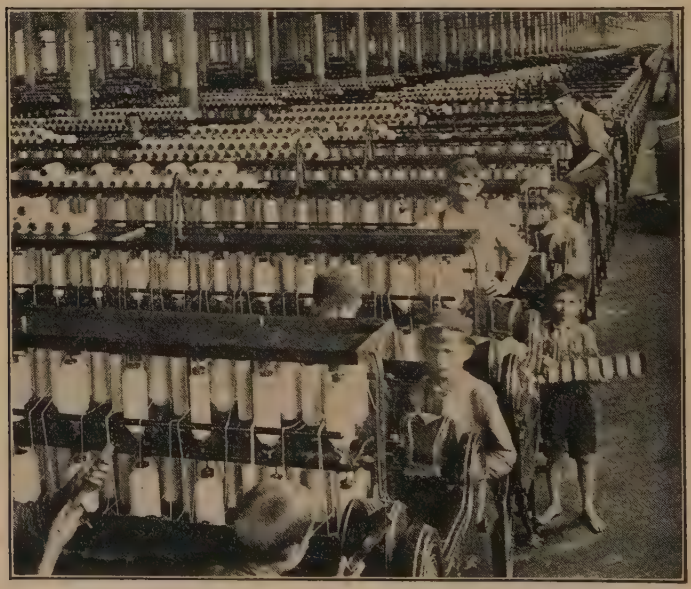
that of wheat and flour from 4.69 to 5.39 bushels. When to these statistical evidences of well-being are added such things as improved houses, better education, and more abundant and better leisure, it is evident that this period marked a great advance in the lot of the workingman.

344. Agricultural labor. — So far we have confined our attention to industrial workers; if we turn now to the history of agricultural labor we shall not find so bright a picture. While there was advance it was slow, and at no time so great as in the case of urban artisans. Between 1866 and 1879 there was a fall of over 16 per cent. in the nominal wages[1] (with board) of farm laborers; if, however, we take into account the contemporaneous fall in prices, real wages show a rise of about 18 per cent. Little change had probably taken place in the length of the working day, though the introduction of agricultural machinery had undoubtedly done much to lighten the severe strain of farm labor. After that there was a rapid and fairly steady rise in farm wages to 1902; this year showed a gain of 32 per cent. over 1866.

In the South the labor problem was so different from that in the rest of the country as to necessitate separate discussion. With emancipation the conditions of labor were revolutionized: three million laborers passed suddenly from a state of slavery to one of freedom. The Negroes, judging labor of any kind a badge of slavery, and esteeming idleness the greatest blessing of liberty, deserted the plantations in large numbers and sought their pleasure in the towns. The problem in the South, therefore, was not so much the organization of labor, the reduction of hours and increase in wages, as the more fundamental one of how to secure on any terms the necessary labor supply. Immigration was directed to the South as little after the war as before it, and reliance had therefore to be placed mainly upon the Negroes. The wage system was first introduced, but was abandoned after a short trial: where the planter furnished rations and promised wages

[1] Reduced to a gold basis

at the end of the year, he often found himself without the means to redeem his promises, while the idea of waiting so long for his pay was distasteful to the Negro. Even worse was the system of weekly or monthly payments, as the Negro usually refused to work again until he had spent all his earnings. The unsatisfactory character of the wage system was evidenced in part by a fall in agricultural wages of over 25 per cent, between 1867 and 1868.



CHILDREN AT WORK IN SOUTH CAROLINA COTTON MILLS

Children under ten years of age are frequently found in the southern cotton mills. In this great spinning room, with over 100,000 spindles in operation, several young boys may be seen carrying the bobbins upon which the yarn is spun, and helping to tend the machines. One operative can tend two of these machines, which contains a large number of spindles and spins hundreds of threads at once.

345. Labor in the South. — After the failure of the wage system, it became evident that the Negro must be given an interest in the crop and be made at least partly responsible for

the consequences of his idleness. To secure this result the share system, or "cropping" system, was extended throughout the greater part of the South. According to this plan small tracts of land of from 30 to 80 acres were rented to the Negroes on shares: if the tenant furnished his own tools, seed, and rations — which was seldom the case — he received two thirds of the crop; if he furnished his own food, but had his capital supplied, he kept half of the crop; but if he was furnished with everything by the landlord, he was entitled to only one third of the crop. While this system secured better results than the preceding wage system in stimulating the interest of the Negro, it led to a more rapid deterioration of the land.

The labor force in the South consisted primarily of Negroes, most of whom worked at agriculture. According to the census of 1890 over 85 per cent. of the male and 96 per cent of the female colored population at work in the country were engaged in agriculture and domestic service. The question of the efficiency of this labor was therefore a vital one for the South. Was the Negro as efficient a worker as the white man under the same conditions? Was his labor improving? The mass of testimony on both these points was in the negative, although there was, it must be admitted, great diversity of opinion. As the industries of the South became more diversified, the Negro seemed to lack the energy and intelligence to occupy the new positions. In agriculture he confined himself almost exclusively to the cultivation of cotton (70.5 per cent. of Negro farms raised cotton as the principal source of income in 1900, against 10.9 per cent. of similar farms cultivated by whites). Even the special skill that was possessed by many Negro agricultural laborers, who had received their training under slavery, in cotton, tobacco, and rice culture, was lost by the succeeding generation. There was thus a real loss in the industrial efficiency of Negro labor: the skilled laborer became an unskilled one. On this point Mr. Booker T. Washington wrote: [1] "I do not mean to say that all skilled labor has

[1] Future of the American Negro.

been taken out of the Negroes' hands; but I do mean to say that in no part of the South is he so strong in the matter of skilled labor as he was twenty years ago."

Vigorous efforts, led by Mr. Washington himself, were made in the South to educate the Negro along lines of industrial efficiency and to make him a more reliable and competent laborer. Encouraging as were the results, it was manifest that any such work of improvement must be slow and laborious. Toward the end of this period there was a considerable influx into the southern States of immigrants, notably Italians, who supplied an increasing share of the labor needed in the industrial regeneration of that section, and even competed with the Negro in the cotton fields. The native white population supplied most of the labor required by the new cotton factories, steel mills, etc., in which, owing to the lack of restrictive factory legislation, many of the abuses attendant upon the early growth of the factory system elsewhere were being reproduced.

346. Summary: Material Expansion. — This period witnessed the conclusion of the westward movement and the appropriation by settlers of practically all the cultivable area of the United States. Stimulated by the government policy of giving away the land and by the rapid extension of railways, land settlement and the production of foodstuffs proceeded at a rate more rapid than was justified by the economic demand for agricultural products. The existence of a large surplus over domestic needs led to the development of a vigorous export trade in grain, and later in meat. In spite of this outlet there was a serious decline in prices, and this in turn led to depression and discontent. In seeking for a remedy the western farmers were led to favor various schemes for cheap money, such as greenbacks and free silver, and to regard banks with hostility. A demand arose also for government control of the railroads and of other monopolistic enterprises. By the end of the century most of these problems had been satisfactorily adjusted.

In the South a somewhat different set of problems had presented themselves. The economic reconstruction after the Civil War was greatly facilitated by the production of cotton at high prices, but the freeing of the slaves necessitated a complete readjustment of the labor system. This section continued to devote its energies to the production of cotton almost as exclusively as it had done before the Civil War. Towards the end of the period, however, the mineral and forest wealth began to be exploited and manufactures, especially of cotton and steel and iron, were established.

During this period the exploitation of the natural resources of the country as a whole went on at an unprecedented and ever accelerating rate. On the basis of these raw materials there was built up a diversified system of manufacturing, which, by the end of the century, placed the United States in the first rank in the world in this respect. Hand in hand with this development there went on the building of improved transportation agencies, and of the establishment of banking and credit, postal, and other facilities of exchange. Taken as a whole it was a period of great and rapid material advance.

Progress was also being made along other lines. The early part of the period was characterized by rather low political and business standards, but in both these respects notable improvement had been made by the end of the century. The general standard of living was distinctly raised, and better social and industrial conditions made possible by the economic advance. Wages were higher, hours were shorter, and working conditions were on the whole better. Most of the improvement in the lot of the laborer was due to his own efforts, or to those of his organizations, for as yet there was little positive legislation directed to the improvement of his economic condition.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXIV

The rapid industrial changes of this period brought sharply to the front the labor problem. Class-consciousness showed itself for the first time, organization was effected, and industrial struggles with capital soon followed. Increasing recognition was given labor in legislation and in other ways.

1. What conditions are necessary to the rise of a distinct dependent wage-earning class? [W. J. Ashley, English Economic History, part 2, 220; also in The Early History of the Woollen Industry, Publ. Amer. Econ. Assoc., II, 68; T. S. Adams and H. L. Sumner, Labor Problems, 4–14.]

2. What were the chief nationalities of immigrants up to 1880? Their geographical and industrial distribution? [Tenth Census, vols. I, II; Adams and Sumner, Labor Problems, 72; P. F. Hall, Immigration, chap. 1; R. Mayo-Smith, Emigration, chap. 3.]

3. What has been the effect of the employment of women on the home? [E. Levasseur, The American Workman, 338; C. D. Wright, in Tenth Census, II, 20 (552); Adams and Sumner, 52; J. A. Hobson, Evol. of Mod. Cap., 319.]

4. Were women supplanting men in industry? [Levasseur, 335; C. D. Wright, Ind. Evol., 203, 211; Adams and Sumner, 56; F. A. Walker, Discussion in Econ. and Stat., II, 241–244; W. D. P. Bliss, Encycl. of Soc. Ref., art. Women's Work and Wages.]

5. What effect does the employment of women and children have on wages? on the total income of a family? [Hobson, Evol. of Mod. Cap., chap. 12; Adams and Sumner, 55; Wright, Ind. Evol., 210; Levasseur, 336–358; Bliss, Encycl. of Soc. Ref., art. Women's Work and Wages.]

6. Can the interests of labor be best promoted by protecting capital or by direct legislation concerning labor? [E. W. C. Taylor, The Modern Factory System, 177–227; S. Webb, The Case for the Factory Acts, 192–223.]

7. Describe the history of the National Labor Union and the causes of its failure. [K. Coman, 290; R. T. Ely, Labor Movement, 69–70, 333–341.]

8. Are strikes usually called in periods of prosperity or depression?

9. Describe the Knights of Labor more fully. [C. D. Wright, in Quart. Journ. Econ., Jan. 1887; Wright, Ind. Evol., 256–252; T. V. Powderly, Thirty Years of Labor, chaps. 4, 5, 6, 13; Rep. Ind. Com., XVII, part 2, chap. 2; G. McNeill, The Labor Movement, chap. 15.]

10. Describe more fully the American Federation of Labor. [Wright, Ind. Evol., chap. 20; Rep. Ind. Com., VII, 108–9, 420–440; Levasseur,

203–211; M. A. Aldrich, Amer. Fed. of Lab., in Econ. Studies of Amer. Econ. Ass., vol. 3, no. 4.]

11. What was the effect of the railway strikes of 1877 on the cause of labor? [Wright, Ind. Evol., 201–206, 301–306; A. R. Spofford's American Almanac for 1878, pp. 105–112; 1st An. Rep., Bureau of Labor Stat. of Ohio, 287–289.]

12. Describe some of the early attempts at coöperation by the trade unions. Were they successful? [Adams and Sumner, 397–401, 413–419; Parsons, Coöp. Undertakings in Europe and America, in Arena, XXX, 159–167; Hist. of Coöp. in the U. S.; G. L. Bolen, Getting a Living, 67–96; E. Bemis, Coöp. Distrib., in Bull. of U. S. Dept. of Lab., no. 6, 610–644.]

13. What was the Aldrich report? What are "index numbers" and the meaning of the figures in the Aldrich report? [Bullock, Intro., 220; Hadley, Econ., 193–195; C. B. Spahr, Distrib. of Wealth, 103.]

14. Define absolute and relative wages; nominal and real wages. [C. Gide, Princ. of Pol. Econ., 492–496; Bullock, Intro., 402, 405; Levasseur, The Amer. Workman, 393.]

15. What effect did the issue of greenbacks have on wages? [W. C. Mitchell, Hist. of Greenbacks, chap. 5; Dewey, Fin. Hist., 292–294.]

16. Give some specific instance of changes in wages and cost of living with which you are familiar.

17. Was the falling off in cotton production in the South from 1860 to 1870 due more largely to lack of capital or to unwillingness of labor?

18. Describe the Chicago anarchists' riot in 1880, the Homestead strike of 1892, or the Pullman strike in 1894.

SELECTED REFERENCES. CHAPTER XXIV

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PART V

EXPANSION AS A WORLD POWER (1900–1922)

CHAPTER XXV

LABOR AND LABOR ORGANIZATIONS

347. The United States at the beginning of the twentieth century. — It is not easy to fix upon a date which marks a distinct transition in the economic or political life of a nation, for such changes are never abrupt. The opening of the twentieth century may, however, fairly be said to coincide with the beginning of a new epoch in the life of the American people. The war with Spain in 1898 aroused a new national consciousness and gave us new international interests and relations. This was followed by the development of our export trade and the invasion of foreign markets by American manufacturers. This movement coincided with a remarkable expansion of industry and the formation on a hitherto unheard-of scale of industrial combinations, which have reorganized production and led to new methods in both industry and finance. Hardly less momentous is the growth of great labor organizations, capable of coping with the giant aggregations of capital, and the spread in them of the "new unionism." In agriculture the end of the nineteenth century seemed to many to mark the end of our heavy exports of grain and other foodstuffs. The practical exhaustion of the supply of cultivable land in our public domain and the growth of the population seemed to make it certain that we should henceforth need all our domestic supplies for home use, and might even become a food-importing nation.

The various forces thus set in motion received additional impetus with the outbreak of the World War, and other movements were initiated at that time which have had a far-reaching influence on our national life. These were especially marked in the fields of banking and finance, of foreign trade, and of labor, although no aspect of our economic development has remained unaffected.

348. Growth of population. — The population of continental United States increased from 76,303,387 in 1900 to 105,710,620 in 1920, a rate of growth slower than for any similar period in the history of the country. This slackening was particularly marked during the period of the World War, when immigration almost ceased and hundreds of thousands of reservists living in the United States returned to their native countries. In spite of the fact that the population has passed the hundred million mark, this country must be regarded as but thinly settled compared with the states of Europe. If the United States were as densely populated as France it would have a population of 570,000,000, while if it had as many people per square mile as Germany, it would have 1,020,000,000.

THE POPULATION OF THE UNITED STATES, 1900–1920

Date	White	Colored	Total	Percentage of Growth of Population during Decade ending with Year	Immigration during Decade ending with Year	Percentage of Total in Towns of 8000 Inhabitants or Over
1900	66,990,788	8,833,994	76,303,387	20.7	3,844,359	32.9
1910	81,736,957	9,827,763	91,972,266	21.0	8,796,308	38.7
1920	94,820,915	10,889,705	105,710,620	14.9	5,705,811	43.8

The population of the country as a whole has been growing, but different sections have shared rather unequally in these additions. The most striking shift that has come about in the distribution of the population during the past twenty

years has been the growth of large cities, which have absorbed the major portion of the immigrants, and in some states have even been accompanied by a decrease in the rural population. More than half (51.4 per cent.) of our population now dwell in cities of over twenty-five hundred, and nearly thirty per cent. in cities of over one hundred thousand inhabitants. While the movement from country to city is nation-wide in scope, it has proceeded most rapidly in the industrial states, and has tended to swell the size of the largest commercial and manufacturing centers rather than the small or medium cities. Several causes have been cited to explain the decline in the rural population, such as the abandonment of the farms, the smaller size of families, and the barrenness of rural social life. In view of the actual increase in the number of farms the first explanation must be rejected, the second is impossible of proof, and the third is less true with each passing year. The real explanation must be found in the greater productiveness of farm machinery and the setting free of labor formerly needed to raise our food supplies. This labor naturally gravitates to the cities where it is absorbed by the expanding manufactures. On the whole this must be regarded as an economic gain.

349. Composition of the population. — Probably no modern nation in the world is composed of such heterogeneous elements as the American. During the century ending in 1920 over 37,000,000 immigrants came to these shores from every country in Europe and almost in the whole world. This movement has made of the United States a "melting pot" of nationalities. In 1920 the composition of the population was as follows:

COMPOSITION OF THE POPULATION, 1920

Group	Total Number	Per cent of Total Population
Native whites with native parents	58,421,957	55.3
Native whites with one or both parents foreign	22,686,204	21.4
Foreign born whites	13,712,754	13.0
Colored or others	10,889,705	10.3
Total	105,710,620	100.0

The proportion of the foreign born is about 13 per cent. but the problem of assimilating the alien elements is not measured merely by the size of this group, for it usually takes more than one generation to fuse them thoroughly into the body of American citizens. If, therefore, to those of foreign birth there be added those persons, one or both of whose parents is of foreign birth and whose home environment has therefore had a considerable foreign flavor, a truer index of the problem of assimilation laid upon the people of the United States will be given. Together, these two groups amount to 34.4 per cent. or slightly over one-third of the whole. The native born whites with native parents constitute only 55 per cent or somewhat over half.

The seriousness of this problem for the economic, social, and political life of the country cannot be presented in any statistical table. Much depends upon the nationality of the immigrants. The English and Irish, the Germans and Swedes of the previous generation were much more easily assimilated with the native population than are the recent Latin and Slavic elements. The intelligence, age, training, plasticity, and other characteristics of individuals must also be taken into account. Some come with the intention of becoming permanent citizens; others are simply sojourners and are

possibly hostile to our institutions. The "alienage," so to speak, of different groups and of individuals within each group will therefore be very different. The continuance of the strength of the foreign influence which surrounds the immigrant depends largely upon the environment in which he is placed in his new home. Where he settles among members of the same nationality, the foreign language, customs and habits of thought are apt to be perpetuated and the Americanization of the immigrant becomes more difficult. It is this fact more than any other that has created such serious problems in our large cities with their foreign quarters, and in our rapidly growing industrial towns. With the outbreak of the World War the clash of nationalities and the conflict of interests within our own borders became acute and attracted general attention to the situation.

350. The immigration problem. — The problem presented by this large annual infusion of foreign elements into our body politic and economic has been rendered more difficult as a result of certain well-defined tendencies on the part of the immigrants. There has been a strong concentration on their part in the large cities, and within these in distinct quarters. Here the congestion in crowded tenements, with overcrowding in rooms, leads to a lowering of the standard of living and to the spread of disease and vice. There has also been an equally well-marked concentration in certain industries, such as mining and the iron and steel industry, where a large demand for unskilled labor exists. At the same time the presence of a large supply of low-priced labor with a low standard of living has checked increases in wages, and has exercised a depressing influence upon the higher standards of the American laborer.

The feeling, especially on the part of organized labor, that unchecked immigration constitutes a menace to American institutions and standards of living, has resulted in restrictive legislation. In 1903 the head tax upon admission into this country was raised to $2 per immigrant; this was increased to

$4 in 1907, and an Immigration Commission was created for the purpose of making a thorough study of the subject. As a result of their recommendation a law was passed in 1907 to prevent the importation of women and girls for immoral purposes.

Bills imposing a literacy test had been passed by Congress in 1897, 1907, and in 1914, but had each time been vetoed by the president. When a bill containing this provision was returned to Congress by President Wilson in 1917, it was passed over his veto. This law also raised the head tax to $8 and provided for more effective enforcement of the previous legislation. Finally in 1921 an act was passed which limited the number of immigrants of any nationality admitted in any year to 3 per cent of the number of persons of such nationality then resident in the United States. It was estimated that the admission of aliens would be restricted by this measure to about 355,000 during the next year. The reasons which led to this legislation seem to have been, first, the fear of a flood of emigration to this country as a result of the efforts of European citizens to escape the heavy taxes and hard liv-

IMMIGRANTS AT ELLIS ISLAND

All immigrants who wish to enter the United States through the port of New York are disembarked at Ellis Island, where they are subjected to physical and other examinations to determine their fitness to enter.

ing conditions in their homes which have resulted from the war; second, the fear on the part of organized labor that the standard of wages would thereby be lowered, especially in view of the widespread unemployment in the United States at the time; and third, the presence here, as disclosed by the World War, of some 10,000,000 unnaturalized aliens, whose Americanization is necessary before further additions are permitted.

351. The efficiency of labor. — The growth of large-scale production, the concentration of industry, and the immigration of large numbers of unskilled, capital-less laborers have all tended to produce a wage-earning class, and have caused the status of the American laborer to approach more nearly that of his European cousin. And yet foreign observers are agreed in attributing to American labor certain special characteristics: according to the commissioners of the British Iron Trade Association, "the American workman is generally very nimbleminded, versatile, alert, and intelligent, quick to pick up new ideas, and equally ready to apply them." Professor Levasseur was struck by their energy, ambition, and resourcefulness, and especially by the pains which they take to economize labor. From early colonial days labor has always been relatively scarce and high-priced, and, wherever possible, machinery has been introduced to supplement human muscle and brain. As a result, the productivity of the American worker is greater than that of any other laborer in the world, and has made possible the enormous production described in the preceding chapters. On the other hand, accusations are often brought against the high pressure at which the American laborer is compelled to work by steam-driven machinery, the intensity and monotony of his toil, and the narrowing of the field for responsible labor. There is, however, less danger from monotony of work than from monotony of life; the latter rather than the former is the cause of discontent and unrest.

352. The mobility of labor. — A marked characteristic of

American labor, and indeed of the people as a whole, is its mobility or readiness to move from place to place. A certain fluidity has always been given to the distribution of the population by the settlement of immigrants in localities where wages were highest, that is to say where the demand for their services was greatest; but this mobility is even more characteristic of the native-born population. The early settlement of the Mississippi Valley and the Far West was one exhibition of this movement; the more recent increase of the city population at the expense of the rural districts is another. As late as 1910 there were ten states west of the Mississippi in which a majority of the population were natives of other states. Even in so old a state as Illinois, which was admitted to the Union in 1818, this movement of the population is striking: in 1910 one-third of the native-born Americans in Illinois had been born in other states, and at the same time over one-fourth of those born in that state were then living in other states of the Union. For the United States as a whole 21.7 per cent of the native-born lived outside of the state of their birth in 1910.

The facts just cited leave no doubt as to the mobility of the population of the United States. The people slip easily over state and county lines, whether moving in or out. How can this great restlessness of the American people be explained? The principal cause of the westward migration of the people has undoubtedly been the existence of cheaper land in the newly developing sections, but this is no longer important. Another factor, closely connected with this, is the unwillingness of the farmers to change their methods of agriculture to conform with new conditions in their old homes; bred to primitive conditions, with consequent careless tillage and a one crop system, it is easier to move themselves and families to another State where they can continue the same practices than to change their methods.

These explanations apply only to the agricultural population; the movement of the industrial laborers must be ac-

counted for on other grounds. Here the cause is to be found in the better industrial opportunities which the large city offers, the development of new industries, the opening up of new mines or other sources of raw materials, and the building up of new markets. Improvements in transportation facilitate the easy movement of the population and increase its mobility. An important effect of labor mobility is the breaking down of any special bargaining power which workers in one section of the country may have, and the levelling of wages to uniform rates.

353. Labor legislation. — It has come to be recognized that labor is not a mere commodity to be bought and sold on the market like other commodities, and consequently that the wage contract differs from ordinary price contracts in several respects. The latter are between property owners and concern insensate things for the most part. The former is a bargain which involves not only wages, but also conditions of work, hours, speed, safety, with possibilities of fatigue, accident, disease, and even health. Since these are matters which affect the well-being of society itself the state asserts the right to legislate regarding them. Professor Commons has expressed the belief that the latest stage in the development of public opinion and judicial decisions on this subject dates from 1898, and may be called the public benefit period of labor legislation. The health of the producer is now held by the courts to be a public benefit and laws passed to protect him are approved. This protective legislation is sustained by the exercise of that elastic power of the state known as the "police power," which enables the state to limit or even to destroy private rights of property and contract in the interest of the public welfare. Labor legislation accordingly covers almost every phase of the labor contract.

The settlement of industrial disputes is provided for by legislation in two-thirds of the states, Alaska, and the Philippine Islands, and also by federal legislation. Many of the states have permanent boards of conciliation and arbitration,

and in most of these compulsory investigation is authorized. The federal act applies only to common carriers, but within that field has been successful in averting strikes. The best results of both state and federal intervention have been achieved through mediation; compulsory arbitration has not been adopted in this country.

Although legislation regarding hours dates back three quarters of a century the old ideal of an eight-hour day is far from being realized. Out of the 6,615,046 wage-earners in manufactures enumerated in 1909 by the census, only 7.9 per cent. were employed in establishments where the eight-hour day prevailed. Legislation limiting the length of the working day in private establishments in the field of manufacturing has thus far been confined to women and children. Only Montana and West Virginia do not regulate the hours of work for children, and only seven states have placed no restrictions on the hours for women. Restriction of hours for men has been effected through collective bargaining rather than by legal enactment. The federal government and about half the states have eight-hour laws for employees on public works; over half the states limit the hours of work on steam and electric railways, and more than a dozen states have eight-hour laws for the protection of workers in mines and smelters. In only two states, however, has the length of the working day for men been fixed by legislation in manufacturing industries.

About half the states provide public employment offices where an effort is made to find work for the unemployed; and in the majority of the states legislation has been passed restricting the abuses of private employment agencies. Most of this dates from 1900. Legislation for the control of industrial accidents and occupational diseases is becoming more general as their evils and avoidable character are better understood. The usual method of dealing with these questions is that of regulation of the conditions of employments; the complete suppression of the industry or exclusion of persons, except

children, and sometimes women, is unusual. Minimum wage legislation is of recent growth, dating from 1912, when Massachusetts passed the first law on this subject. Since then about a dozen other states have followed the example of Massachusetts and enacted similar legislation. The purpose is to raise excessively low wages to a reasonable level.

The most important recent development in labor legislation has been in the field of social insurance. The federal government has enacted a compensation law for its own employees, and forty-two states have also since 1911 passed workmen's compensation laws. According to these acts workmen are compensated for injuries suffered in the course of their employment; in many of the laws occupational diseases are included as well as accidents. Workmen's health insurance, old age and invalidity insurance, and unemployment insurance by government action have not as yet passed the stage of discussion in the United States. These forms of insurance have however been developed by a few large employers, notably the railroad companies, and by the trade-unions.

354. Labor organization. — The past twenty years have witnessed important developments in the field of labor organizations. The older trade-union was made up of members who pursued the same craft, and whose aims were similar; in the pursuit of these they emphasized practical ends which should immediately benefit the members of the union. This type of self-sufficient or separate trade-union has steadily lost its power and importance as machine methods have destroyed the value of special skill or the need of training for a particular craft. Recently therefore a new type of organization, comparable with the integration of various industries into one great company, has developed in the field of labor; this is industrial unionism or the amalgamation of various workers in an industry into one organization.

The American Federation of Labor still retains its preeminent position as the federation of unions. The member-

ship of its affiliated unions has grown from 550,000 in 1900 to 1,762,000 in 1911, and 4,078,740 in 1920. Until recently these unions were organized out of skilled members of a particular craft or trade, rather than from the industry as a whole; the unskilled workers were largely overlooked. The American Federation of Labor was merely a loose grouping of practically self-governing national unions, which were largely independent of each other. The members of one affiliated union might strike and those of another might continue at work in the same plant. The newer type of organization is the union under one control of all workers of various trades within the same industry. An amalgamation of allied crafts is already taking place even within the American Federation of Labor and may broaden into complete industrial unionism.

Whatever merit the idea may have in an age of machine methods, the name has fallen into bad repute because of its association with the Industrial Workers of the World. This organization is an industrial union filled with radical ideals. It is a revolt against the present capitalistic organization of society, which it aims to destroy by "direct action," that is by using the general mass strike in the destruction of the capitalistic system. The more radical adherents reject the use of constitutional and political methods in reforming present abuses, and demand the immediate establishment of a new industrial state in which representation is to be by industries controlled by workers. The industrial unionism at which they aim is like the syndicalism of France or the more recent sovietism of Russia, and is to be attained by terroristic and destructive methods. Organized in 1905, the I. W. W. spread so rapidly that it awakened alarm, which was accentuated by its use of force. But with the entry of the United States into the World War the influence and strength of this radical movement waned.

355. Maintenance of industrial peace. — With the growth of organization on the part of labor and of employers the

process of collective bargaining has been resorted to in many trades, by which a formal contract is drawn up and signed by representatives of the two parties as the result of a mutual agreement. Thus discussion is substituted for dictation. While this method involves the recognition of the trade-union, it secures fair treatment to both laborer and employer, and generally obviates a resort to strikes. This system of joint conferences for the establishment of wage-scales dates from 1865 in the United States, when it was introduced into the iron industry; to-day it is a common method in the strongly organized trades.

Boards of conciliation are often provided for, which endeavor by means of discussion and mutual concession to prevent disputes from arising. Should a dispute, however, be unavoidable, provision is usually made for its reference to a board of arbitration, which may be selected by the disputants or consist of an outside body, voluntary sometimes and at others created by the State. Governmental boards of arbitration have been established by the Federal government and about half of the States, but their powers and influence have so far been very limited in practice. Employers have often urged that the trade-unions are too irresponsible under present conditions, and before they ask for collective bargaining and arbitration of industrial disputes, should be incorporated. Only after their legal incorporation, it was thought, could they be held liable in damages for a breach of contract. Because of this belief, therefore, the unions preferred their position of irresponsibility and immunity and refused to be incorporated. The Supreme Court decided, however, in the Coronado coal case, in June, 1922, that labor organizations, although unincorporated, are amenable to the Sherman anti-trust law and may be prosecuted for restraint of interstate commerce, and that they are suable for their acts as an organization. In effect, therefore, this decision has placed the unions upon the same footing as an individual or a corporation by making them liable for damages on account of unlawful acts.

356. Employers' associations. — The organization of employers for the purpose of extending their trade, and even of treating with labor, is not a new phenomenon. But the last twenty years have seen the growth of a new purpose and new methods of organization which mark a distinct era in the labor movement in the United States. Probably the first national association of employers was the Stove Founders' National Defence Association, formed in 1886. It was followed by others, until at the present time there are national organizations in the seven industries of stove and furnace manufacturing, metal foundry work, lake transportation, machine construction, publishing and printing, marble cutting, and ready-made clothing. These associations are counterparts in those industries of the labor organizations with which they can and do conclude contracts regulating wages and conditions for practically the whole country. Furthermore, there has existed since 1895 a Federal organization of employers, corresponding, though but distantly, to the American Federation of Labor, namely, the National Association of Manufacturers.

While the earlier employers' associations contributed greatly to the maintenance of industrial peace by collective or joint bargaining with the labor unions, they devoted themselves chiefly to the extension of their trade. As the strength and power of the labor unions grew, many employers thought they saw in their demands a menace to business, and some of the later organizations have been formed with the explicit purpose of opposing certain union principles. These militant associations formed in 1903 a federated "Citizens' Industrial Association of America." Unless they exhibit a more conciliatory spirit than is evidenced in their official utterances, some bitter fights may be expected between the now strongly organized forces of capital and labor. The public is, however, awakening to the conviction that it suffers the greatest injury as the innocent third party to every dispute, and is insisting upon more reasonably maintaining industrial peace and settling disturbances than by a resort to the strike or lockout.

357. The World War and Labor. — Organized labor in the United States with a few exceptions, supported loyally the war policies of the government. On the other hand the government freely recognized the principle of collective bargaining, and established the National War Labor Board as an agency for settling disputes between employers and employees. The position of labor was greatly strengthened during the war by reason of the reduction of immigration to a minimum, and of the return of thousands of alien reservists to their native homes. After the entry of the United States into the war additional thousands of workers were drafted into military service. There was thus a relative scarcity of labor and wages rose as a consequence. Labor leaders were appointed on most of the war boards organized by the government, and the right of organized labor to participate in the political and industrial affairs of the nation seemed to be recognized by the administration. In return, restrictions on output were reduced by the workers, and the increased production of coal, ship building, rivet driving, and similar lines showed encouraging possibilities.

After the armistice organized labor became more restive, and seemed not unwilling to put their newly won power to the test. Several conditions contributed to this end. Radical leaders had come to the front in several unions, who were dissatisfied with the conservative policies of the American Federation of Labor and wished to use extreme measures to enforce their rights. Wages in many lines had not risen as rapidly as the cost of living, and this had caused dissatisfaction. A long series of strikes occurred in 1919, culminating in the steel and coal strikes and leading in the latter case to intervention on the part of the government.

In order to prevent further industrial disturbances, a National Industrial Conference was called together by President Wilson in October, and a second one in December, 1919. This Conference recommended in its report that shop councils or committees on which both employers and employees

would be represented, should be organized in industrial establishments for the prevention of disturbances. For those disputes which could not be settled in this way it recommended the establishment of a system of local and national councils for industrial conciliation. As yet no legislation has been enacted along these lines by Congress.

An interesting movement has, however, been initiated by the state of Kansas, which in 1920 passed a law prohibiting strikes in basic industries engaged in producing food, fuel, clothing, and transportation. It also created a Court of Industrial Relations, which shall investigate labor disputes in such industries, and issue orders with regard to wages, hours, and working conditions; if necessary the state is authorized to take over and operate any of the industries enumerated in which work is suspended in violation of the law. The principle of this law was endorsed for the federal government by President Harding in his annual message to Congress of December 5, 1921, and a step in this direction was taken by the Transportation Act of 1920.[1]

358. Wages and cost of living. — Beginning in 1898 there was an upward movement in both wages and prices, which was but slightly slowed up by the panic of 1907. If wages and prices during the period 1890–1899 be taken as a base and called 100, then it is found, according to a recent careful study,[2] that full time weekly wages, union scale, in 1900 were 104.6; in 1910 they were 126.5, and 1918 they were 187.7. This was a tremendous increase, but unfortunately the cost of living was rising at an even more rapid rate. Again taking the period 1890–1899 as the base for retail food prices, it appears that these rose from 103 in 1900 to 144.1 in 1910, and to 266.6 in 1918. If these figures be combined so as to ascertain the purchasing power of wages in terms of food, it develops that the condition of the laborer has grown worse

[1] See sec. 382.

[2] Douglas and Lamberson, The Movement of Real Wages, 1890–1918, in Amer. Econ. Rev., Sept., 1921.

in spite of the increase in his money wages. In 1900 he could purchase 101.6 per cent of what he could buy during the decade 1890–1899, but in 1910 he could obtain only 87.8 per cent., and in 1918 only 70.4 per cent. His real wages, or what he could buy with his money income, fell during this period. It is probable that wages gained ground on the cost of living in 1919 and the larger part of 1920, but by the end of the latter year prices began to fall and the rise in wages was arrested; during 1921 there was a downward movement in both prices and wages. If the final result of these changes should resemble the outcome of the similar changes after the Civil War, it may be predicted that wages will remain on a permanently higher level even after prices fall to their old levels, so that both the money and the real wages of labor will be higher than they were before the war.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXV

The labor problem has centered primarily around the efforts of the workers to obtain a larger share in the national dividend and also to obtain greater control over the conditions of labor and even of management. With a view to preventing undue competition in the labor market they have secured restrictions upon immigration; and, in order to protect themselves from the injurious effects of bad working conditions, have sought and obtained favorable legislation.

1. Explain the growth of cities in the United States. Was the movement true of other countries? [A. F. Weber, The Growth of Cities; Shaw, Mun. Gov't in Great Britain, 2–17; J. Strong, The New Era, 188–197; W. D. P. Bliss, Encycl. of Social Reform, art. City and Social Reform.]

2. Compare the racial composition of the population in an important manufacturing city to-day with that of twenty-five or fifty years ago. [Census volumes on Population.]

3. What proportion of our illiterate, criminal, or otherwise undesirable population is composed of foreign-born? [T. S. Adams and H. L. Sumner, Labor Problems, 89; R. Mayo-Smith, Emigration, chap. 8; P. F. Hall, Immigration, chaps. 5, 8; Rep. Ind. Com., XV, 285–292.]

4. Do you think immigration should be restricted? Why? [Rep. U. S. Com'r. of Immigration; Mayo-Smith, chap. 12; Hall, part 3, chaps.

10–14; Bliss, Encycl. of Soc. Ref., art. Immigration; Croswell, Should Immigration be Restricted? in No. Amer. Rev., May, 1897.]

5. Should the Chinese restriction law be repealed? [Rep. Ind. Com., X, 747–802; Hall, chap. 15; J. W. Foster, Amer. Dipl. in the Orient, chap. 8.]

6. Describe the distribution of the important races in the United States. Why have they settled where they are? [Rep. Ind. Com., XV, 492–616; C. D. Wright, Practical Sociology, 56–59; Hall, 88–95; Wilcox, The Distribution of Immigration in the U. S., Quart. Journ. of Econ., XX, 523 (Aug. 1906).]

7. Describe the conditions in the slums of one of our large cities. [Rep. Ind. Com., XV, 449–492; 7th Spec. Rep. of U. S. Dept. of Labor; Hull House Maps and Papers; E. L. Bogart, Housing of the Working People in Yonkers, in Economic Studies, vol. 3, no. 5.]

8. Has the mixture of races through foreign immigration been a source of strength or weakness to the American nation? [Mayo-Smith, chap. 8; Hall, 98, 172; Rep. Ind. Com., XV, 304–316; J. R. Commons, Races and Immigrants in America; Fisher, Alien Degradation of Amer. Character, in Forum, XIV, 608–615.]

9. What further labor legislation, if any, should be passed in the United States? [J. G. Brooks, The Social Unrest, chap. 12.]

10. Do you approve of trade-unions? Why? [N. S. Gilman, Methods of Ind. Peace, chap. 7; J. Mitchell, Org. Lab., chaps. 17, 19; C. J. Bullock, Intro., 432–441; H. R. Seager, Intro., 386; Bliss, Encycl. of Soc. Ref., art. Trade Unions, IV, V.]

11. Is a labor union a monopoly? [Seager, Intro., 406–8; Bogart, Chicago Building Trades Conflict, in Pol. Sci. Quart., XVI, 121; also in Commons, Trade Unionism and Labor Problems, 94.]

12. Should trade-unions be incorporated? [Gilman, chap. 6; Mitchell, chap. 26; Adams and Sumner, 271–279.]

13. What should be the attitude of strikers to non-union men who are willing to take their positions? [Gilman, 420; Mitchell, chap. 32.]

14. Do you approve of the open or closed shop? [White, *et al.*, in Publ. Amer. Econ. Ass., 3d Series, IV, 173 ff.; Rep. Ind. Com., VII, 715–722; V. S. Yarros, in Rev. of Rev., XXXI, 589.]

15. If a universal eight-hour day were introduced, would there be more work for the unemployed? [J. Rae, Eight Hours for Work; G. Gunton, Wealth and Progress; Rae in Econ. Journ., vol. 1; F. A. Walker, in Atl. Mo., June, 1890.]

16. Are strikes necessary? Do they pay? [Rep. Ind. Com., XVII, lxii; Adams and Sumner, 206; Seager, Intro., 398; H. G. Sumner, Do We Want Industrial Peace, in Forum, VIII, 406–416; F. H. Foster, Trade Union Ideals, in Publ. Amer. Econ. Ass., 3d Series, IV, 173–210.]

17. What is meant by a boycott? A lockout? The sympathetic strike? Do you approve of these methods of conducting an industrial dispute? [F. S. Hall, Sympathetic Strikes and Sympathetic Lockouts; Mitchell, Org. Labor, chap. 33; Adams and Sumner, 175; E. Levasseur, The American Workman, 237–240, 250–257.]

18. Describe compulsory arbitration in New Zealand. [Gilman, chap. 14; H. D. Lloyd, A Country without Strikes; Adams and Sumner, 319–325; Rep. Ind. Com., XVII, 519-539.]

19. Describe the work done at Tuskegee Institute. [B. T. Washington, The Successful Training of the Negro, in World's Work, Aug., 1903.]

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CHAPTER XXVI

MANUFACTURES

359. Development of manufacturing. — While the making of tools has always preceded the making of consumable goods for immediate use, manufactures have now reached a stage of development where the tool and machine making industries have assumed special importance and occupy a distinct place. In our modern capitalistic industry almost all consumers' goods are made with the help of machinery. An example of the manufacture of finished goods is the textile industry, which furnishes cloths, carpets, and similar articles for use; an example of a machine industry is the iron and steel industry, which provides other industries with machines, tools, and equipment of various sorts. Thus in 1910 the census enumerated 346 products of the iron and steel industry, of which 98 were for direct consumption, and 248 were machines or articles for use in other industries. The most striking and characteristic development of manufactures in the United States during the past quarter century has been in the latter group. This is shown by the character of the leading manufacturing industries in the United States. First place was held in 1920 by slaughtering and meat packing, while flour and grist mill products ranked fifth. These illustrate the great importance of the manufactures which provide food. Cotton goods, men's clothing, boots and shoes, and woolens occupied seventh to tenth places respectively, showing that the clothing industries rank close to the top in the industries of the country. But the rapid rise to second place of foundry and machine shop products and to fourth place of iron and steel proves conclusively that the manufacturing

industries which supply construction materials and machinery have come to occupy a commanding position in our economic development.

The growth of manufactures as a whole during this period is shown in the following table: [1]

Year	Number of Establishments	Number of Wage-Earners	Capital	Cost of Materials Used	Value of Products
1899	207,514	4,712,763	$8,975,256,496	$6,575,851,491	$11,406,926,701
1904	216,180	5,468,383	12,675,580,874	8,500,207,810	14,793,902,563
1909	268,491	6,615,046	18,428,269,706	12,142,790,878	20,672,051,870
1914	275,791	7,036,337	22,790,979,937	14,368,088,831	24,246,434,724
1919	290,105	9,096,372	44,569,593,771	37,376,380,283	62,418,078,773

[1] Since 1900 the statistics of manufactures have been confined to factory industries; in order to make them comparable the figures for 1900 are therefore confined to the same group.

360. Causes of growth. — The primary cause for the very rapid development between 1900 and 1920 is to be found in the growing demand. This has resulted both from the increases in the population at home and also from the opening up of new markets abroad for our manufacturers. Indeed, the most striking feature of our foreign trade during the last twenty years has been the export of American manufactures. The mere growth of population is, however, not in itself a sufficient explanation of the increase in the domestic demand. There has at the same time been a steady, if slow, improvement in the well-being of the American workingman and a consequent increase in his purchasing power. New demands have also been quickened, if not wholly created, by new methods of advertising and salesmanship, so that the market has constantly expanded.

On the side of supply, that is the ability of American manufacturers to meet the demand, the most important factor is the plentifulness and richness of raw materials. The basic

materials for practically every branch of manufacturing industry are to be found in the United States. Another factor contributing to our industrial pre-eminence is the increasing supplies of capital which are available for the expansion of existing plants or the building of new ones. Capital may take the form of buildings, of equipment, of new machines, or of better transportation agencies, all of which have shown marked increase. Obsolete machinery and processes have been quickly scrapped in favor of better devices, so that there has been not merely an increase in the amount of capital applied to manufactures but also an improvement in its efficiency.

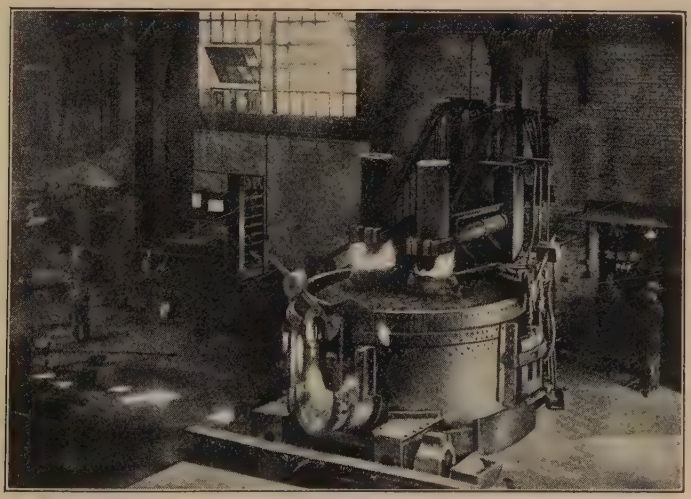
Finally, the labor supply is perhaps the most important element in the growth of industry, for upon its quantity and quality depend the effective use of the raw materials and capital. While the increase in numbers has not been so rapid since 1900 as it was in the preceding twenty-year period, yet there is available for manufactures a considerable amount of labor set free from the primary extractive industries, especially agriculture. As a smaller proportion of the population is needed to raise the necessary food supplies, the labor set free from this occupation may be devoted to transforming for human use the raw materials. It may also fairly be claimed that the quality of labor is improving. The percentage of native born whites among the total population has somewhat increased, and the general level of education has been raised by an excellent public school system. As yet, however, little has been done toward training the mass of the workers along vocational lines.

361. Inventions. — Owing to the relatively high wages paid labor, as well as to a certain venturesome open-mindedness, manufacturers in the United States have always been willing to introduce labor-saving devices and to experiment with new mechanical appliances. Machine methods have been developed further in this country than probably anywhere else in the world. Their profitable introduction was made possible

by the enormous domestic market, which would absorb large amounts of uniform standardized articles, and by the character of the raw materials which must be worked up. In no period of our national history have more important or far-reaching inventions been made than in the first quarter of the twentieth century. Technical improvements in the processes of manufacture themselves, methods of handling freight, the internal organization of the factories, the use of power devices, and the introduction of labor-saving devices of every kind illustrate some of the lines along which progress has been made. Space does not permit elaboration, but a few words may be devoted to what is probably the most significant development in industry since the invention of the steam engine, namely the use of electrical energy for various industrial purposes.

Before the Civil War electricity was used commercially only in the telegraph and the electro-plating industries. In 1876 the telephone was invented by both Bell and Elisha Gray, but the first patent was obtained by Bell. Almost simultaneously Brush invented a commercial arc-lighting apparatus, while Edison and Elihu Thompson were developing the constant potential dynamo suitable for operating Edison's perfected incandescent lamp, which was first introduced in the early eighties. These were soon followed by still more important inventions for the employment of electricity as a motive power, such as the introduction of the alternating current system through the perfection of transformers by the Westinghouse interests. The next step was the application of the electric motor to railway transportation. Central stations were rapidly introduced, which furnished power as well as electric lighting, and about 1890 electric motors began to be used for traction in our city streets, superseding horse-cars and cable-cars. Electric cars were at first confined to interurban and street railways, but today large railroad systems have electrified long stretches of road, and our newest battleships are being electrically driven. The

most significant change now taking place in the motive power for manufacturers is the rapid substitution of electricity for steam, though this movement is only in its infancy as yet. Water power even in the most inaccessible places has been made available by long distance transmission to manufacturing centers for motive power and for lighting. Even more pregnant of the immense possibilities of the future is the



ELECTRIC STEEL FURNACE

In an electric furnace a very pure heat is produced by means of electricity. By varying the materials any impurity can be eliminated, leaving the glowing steel as pure as crystal. The alloys are then mixed in, and the steel is thus made fit for any kind of use desired.

development of the electro-chemical industries, such as carborundum, which owe their very existence to electricity. The electric furnace is to-day revolutionizing the metallurgy of steel. In 1900 wireless telegraphy opened a new field of experimentation, which now includes the wireless telephone. A growing field for electricity is the remote control of all types of machinery, illustrated by the perfect control of the torpedo sent out from a battleship. Today the use of electric

appliances in the household and on the farm as well as in the factory is general, and shows the diversity of uses to which electricity is applicable.

362. The patent system. — An important factor in the development of inventions in any country is the patent system. That of the United States [1] has been effective in stimulating the inventive genius of its people, but progress along these lines is no longer left to the efforts of some talented individual. Practically every great business to-day has its research department in which experiments are being carried on at an expense far beyond the means of an individual inventor. The results of such investigations are patented, and new inventions by unattached individuals are generally bought up by these big businesses. At this point certain defects in our patent system have been revealed.

Although our patent laws have stimulated invention they have also led to monopoly and the suppression of valuable devices. The holder of a patent now obtains a complete monopoly in his invention, and may, if he chooses, suppress it instead of marketing it. When a new device is patented, whose use would revolutionize an industry and make existing plants useless, it is often brought up by the interest affected and then suppressed. In this way progress is prevented rather than aided. Such abuses have been notorious in the fields of telephony, shoe machinery, and petroleum refining. Every country in Europe, on the other hand, except one, makes a patent forfeitable if left unutilized for two or three years. It is urged that in the United States there should be no monopoly rights granted under a patent, but only a royalty right, so that anyone so wishing would be permitted to manufacture a patented article under license from the government and upon payment of a fixed royalty.

363. Iron and steel industry. — There is probably no industry of such basic importance as this, for iron and steel in some form enter into practically every other industry. Indeed

[1] See sec. 140, 318.

the modern industrial era is called for this reason an "age of steel." The United States today leads the whole world as a producer both of pig iron and of manufactured iron and steel. Already in 1902 she produced over 40 per cent. of the world output of pig iron, or more than Great Britain and Germany combined, which held second and third rank respectively. The value of the products of iron and steel manufactured in the United States rose from $804,034,918 in 1899 to $3,661,952,918 in 1919. If to these be added the commodities made primarily or largely of iron and steel, such as automobiles, agricultural implements, electrical apparatus, the grand total would be $9,403,634,265 in 1919.

STUDEBAKER PLANT

This illustrates the mammoth size to which a modern factory producing standard goods can grow. The plant at South Bend, Indiana, here shown, produces principally vehicles and harness, and automobile bodies and parts.

Of all the industries dependent upon the iron and steel industry for its materials, the manufacture of automobiles has had the most spectacular rise. First mentioned in the census of 1900, with 57 establishments and an output valued at $4,748,000, it produced in 1920 cars and parts worth $3,080,073,979 in 2830 establishments. Although most of the auto-

mobiles are pleasure vehicles there is a steady growth in the manufacture of delivery wagons, trucks, and tractors.

364. Textile manufactures. — The combined textile industry, comprising the manufacture of fabrics, the clothing industry, and textile products, ranked second in 1919 with a total product of $9,216,102,814. The growth of the textile fabric industry alone, which includes the manufacture of cotton, woolen and worsted, silk, and hosiery and knit goods, together with dyeing and finishing, is shown in the following table:

TEXTILE FABRIC INDUSTRY, 1899–1919.

Year	Number of Establishments	Number of Wage-Earners	Capital	Value of Product
1899.....	4,099	631,979	$982,559,000	$886,882,000
1904.....	4,280	704,875	1,256,939,000	1,166,430,000
1909.....	4,825	834,087	1,717,795,000	1,591,736,000
1914.....	4,991	874,702	1,921,925,000	1,761,711,000
1919.....	5,767	912,993	3,795,804.408	4,662,609,165

In the manufacture of cotton goods ($2,125,272,000 in 1919), the United States easily ranks first among the nations of the world on the basis of the amount of raw cotton consumed. Judged by the number of spindles employed, however, or by the value of the product, this country would take second place, after Great Britain. The woolen and worsted industry ($1,065,434,000) was the most important branch of textile manufactures until the late nineties, but has shown a slower development than the other branches. One of the striking features of the recent development of this group, on the other hand, has been the rapid growth of the manufactures of hosiery and knit goods ($713,139,000), and of silk goods ($688,469,000). Their progress must be attributed to the introduction of machine methods and the application of inventive genius and mechanical skill. In the manufacture of cordage and hemp the United States probably holds first place.

365. Effect of the World War upon manufactures. — When the war began in 1914 American industries were in a depressed state, but the urgent demand from the European belligerents for war supplies of every sort quickly led to revival and expansion. Our exports to the five leading nations of the Entente Allies grew from $927,000,000 in the fiscal year 1914 to $2,432,000,000 in 1915 and $3,012,000,000 in 1916. These foreign orders were for explosives, iron and steel, copper, brass, bronze, and zinc, automobile parts, boots and shoes, canned goods, meat, dairy products, and similar articles. As a result, manufacturing industries which could produce munitions and war supplies expanded and prospered greatly. With the diversion of labor and capital into war industries, however, other enterprises suffered correspondingly. Building operations were almost at a standstill and in many cities factories were shut down, while unemployment and high prices showed that the war prosperity was very unevenly distributed.

The same thing was true in even greater degree after the United States entered the war in April, 1917. In order to mobilize the industrial forces of the nation and direct all efforts to the single task of winning the war, there was early created a War Industries Board. Its functions were to obtain materials for military purposes with the minimum dislocation of industries; to restrict non-war production; and to fix maximum prices. Through the Priorities Board fuel, transportation facilities, labor, and even credit were assigned first of all to war industries, while those producing luxuries or dispensable goods were forced to curtail or even to suspend their operations.

After the armistice there was a general resumption of activities, which rushed to extremes in 1919 and 1920 under the stimulus of credit inflation and high prices. A panic was narrowly averted in the latter year, and a period of depression ensued which was brought to an end in 1922 by the more normal and healthy resumption of business. In spite of the ups and downs of the war period, there were certain definite addi-

tions to the manufactures of the country as a result of our experiences. The most important are undoubtedly the dye and chemical industries, of which before the war Germany had a practical monopoly.

366. Tariff changes. — For twelve years the Dingley tariff remained undisturbed, but the general dissatisfaction finally grew too strong to be resisted and led to revision by a Republican Congress. The Payne-Aldrich tariff of 1909, however, reduced the duties but slightly, and in some schedules even raised them. There was a slight movement to freer trade in the materials of manufacture, and works of art, more than twenty years old, were admitted free of duty. A tariff board was also appointed, but lapsed after three years because of lack of Congressional support. Bills to revise the wool and cotton schedules and to admit certain farmer's goods free, which were passed by a Democratic Congress in 1911, were vetoed by President Taft.

The failure of the Payne-Aldrich tariff to reduce the rates, especially those which protected the trusts, caused general dissatisfaction, and in the elections of 1910 and 1912 popular disapproval was shown by the election of a Democratic President and Congress. In the Underwood tariff of 1913 substantial reductions were made in many of the higher duties, and the free list was enlarged, wool, iron ore, pig iron, steel rails, agricultural implements, and other articles being admitted free, and provision being made for free sugar after two and a half years. The act was by no means a free trade measure, however, the average rate of duty being about 30 per cent. as against the 40 per cent. of the previous law. Since a reduction of revenue was expected, the act provided for the imposition of an income tax. The outbreak of the war the following year caused a falling off of imports and of revenues from tariff duties, and this was even more true after the United States entered the war. Reliance for federal revenues came therefore to be placed upon income and internal revenue taxes of various kinds, and no changes were made in

the tariff schedules, except the repeal of the provision placing sugar upon the free list. By the act of September 8, 1916, a Tariff Commission of six members was created. Its functions are purely investigational and advisory, but its personnel is such as to command respect.

Upon the inauguration of a Republican President in 1921 the dominant party proposed a revision of the tariff upward. This time the argument was advanced that, owing to the depreciation of foreign currencies, the countries with the cheap money enjoyed an advantage over the United States, which alone had maintained its currency upon the gold standard. Rates would therefore have to be increased in order to protect American industry against cheaply produced foreign goods. Not only that, but it was proposed to base the duties upon valuation of the imported articles at prices current in the American market instead of upon the cost of the goods in the country of origin. A variable amount of additional protection would thus be given.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXVI

The problem of manufactures in the earlier periods of our national development has been how most quickly to exploit and work over by comparatively few processes the rich natural resources. Today attention is being given increasingly to better organization of industry, more complete utilization of the raw material, improved appliances and machinery, and reduction of costs along all lines. These become increasingly important as American manufacturers enter foreign markets in competition with rivals of other nations.

1. What connection is there between the growth of cities and manufacturing? [Twelfth Census, VII, 218, 256; A. F. Weber, Growth of Cities.]

2. What is the principal manufacturing industry of your home? Why was it situated there?

3. Is the West likely to become a manufacturing section? Give your reasons.

4. To what extent has child labor been employed in manufacturing? What is the situation in the South today? [C. D. Wright, Practical Sociology, 214; W. C. Hunt, Workers at Gainful Occupations; W. F. Willoughby and C. de Graffenried, Essays on Child Labor.]

5. Mention the chief economies due to the use of electricity in manufactures. [Twelfth Census, VII, cccxxvii, P. Leroy-Beaulieu, The U. S. in the Twentieth Century, 214–216; G. S. Morrison, The New Epoch.]

6. What are some of the notable achievements in the generation and transmission of electric power? [Twelfth Census, VII, 322; consult Poole's Index for additional references.]

7. Describe the utilization of wastes and by-products in the more important industries. [Twelfth Census, X, 723–748; Kittredge, Utilization of Wastes, in Sci. Amer. Suppl., LIV, 22462, 22478, 22498, 22518.]

8. Trace the growth of some one industry that has shown especially rapid growth, and give the principal reasons therefor. [Twelfth Census, IX, X.]

9. Describe the iron ore supplies of the Lake Superior region and the labor-saving ore-mining and handling devices used. [F. W. Taussig, in Quart. Journ. Econ., XIV, 156–157; Rep. of Brit. Iron Trade Com., 30–47, 105–109, 412; H. R. Mussey, Combination in the Mining Industry.]

10. Describe the organization and management of the United States Steel Corporation, the National Cash Register, or other large company. [Rep. of Brit. Iron Trade Com., 74–84; Rep. Ind. Com., vols. VII, XIV; E. S. Meade, Trust Finance, chap. 11.]

11. Is there any connection between the industrial development of the United States and the rise of protectionism in England? [W. J. Ashley, The Tariff Problem, chaps. 4, 5.]

12. Has the total wealth of the United States been increased by the policy of protection? [C. J. Bullock, Intro., 348, 354; F. W. Taussig, Tar. Hist., 361 ff.]

13. Products from the Philippines paid import duties upon being imported into the United States before annexation; if after annexation they were admitted free, who would gain and who lose?

14. Illustrate in greater detail some of the economies effected by concentration in large establishments. [Twelfth Census, X, 723; Rep. of Ind. Com., I, 68; J. W. Jenks, Trust Problem, ch. 2; H. R. Mussey, Combination in the Iron Industry.]

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CHAPTER XXVII

INDUSTRIAL COMBINATIONS

367. Tendency towards combination. — We have seen how rapidly the industrial expansion of the United States after the Civil War led to an increase in the size of manufacturing enterprises. The old-fashioned methods of petty producers with small capital were insufficient to develop the wealth of natural resources lying open to the people, and they were steadily supplanted by establishments of growing size and complexity. But not merely did the size of the single establishment grow; the characteristic feature of the industrial development of the last quarter of the nineteenth century was the combination of hitherto independent businesses into single concerns with centralized management. Industry began to be organized and carried on by the great captains of industry, small independent producers to disappear, and laborers to be marshaled in bodies of a thousand men or more.

Before combination on a large scale could take place several conditions favorable to its growth had to be met. Among these were the standardization of machinery and methods, the creation of adequate accounting systems, the perfecting of the telegraph, telephone, and typewriter, and most important of all, the building and organization of railroads.

Until the construction of adequate transportation facilities, the average business establishments in the United States were essentially local in their nature, supplying a comparatively narrow market and using a small capital. With the rapid extension of the railway system after the Civil War, it became possible to expand operations over a wider territory, to localize and concentrate manufactures, and to use larger masses

of capital in a single establishment. With the widening of the market there went on, therefore, an expansion of the business unit, and the modern trust became an economic possibility.

368. Organization of American industry. — The early rise of corporations with limited liability, about 1840, has already been alluded to (Sec. 206). In spite of the early abuses this form of business enterprise soon justified itself, and since that time there has been a steady shifting of capital from private independent management to corporate control. The corporation with limited liability offered special facilities for doubtful ventures in the way of railroad building and similar improvements, and speedily grew in favor. Even industrial enterprises, such as manufacturing concerns, began generally to be organized under this form; indeed, the growth in the number of corporations has been nearly identical with the increase of large-scale production and concentration of production. Omitting the hand trades from consideration, the following table shows that while only a quarter of the industrial establishments in the United States in 1910 were corporate in form, they turned out over three quarters of the goods manufactured:

FORMS OF ORGANIZATION OF MANUFACTURING ESTABLISHMENTS, 1910

Form	Number of Establishments	Per cent.	Value of Product (in millions)	Per cent.
Individual manufacturers..	140,605	52.4	$2,042	9.9
Partnerships.....	54,265	20.2	2,184	10.6
Corporations.....	69,501	25.9	16,341	79.0
Co-operative societies, etc.	4,120	1.5	104	0.5
Total.....	268,491	100.0	$20,672	100.0

369. Early attempts at combination. — Under the pressure of economic forces the movement towards industrial reorgani-

zation began. Various devices had been resorted to for the purpose of restricting competition, of which the earliest and most common was an agreement between competing producers to fix prices or to limit output, as in the case of the railroads and anthracite coal mines; a second method was to divide the territory or the profits, as in the case of the salt industry. These agreements were extremely loose and constantly broken by the members under the temptation of higher profits. A stronger form of organization, involving more complete control over the separate establishments, was felt to be necessary, and under the leadership of John D. Rockefeller, the Standard Oil Company, consisting of the earlier company of this name and some of its strongest competitors, was formally organized as a "trust" in 1879. According to this scheme a board of nine trustees was selected to whom the stockholders surrendered their stock, receiving in return trust certificates; the trustees then operated all the plants in harmony, and divided the profits among the holders of the trust certificates.

The success of this new style of combination led to the formation of similar arrangements in the manufacture of whiskey, sugar, lead, cottonseed oil, starch, etc. Hostile legislation and adverse decisions of the courts forced the trusts to change their form about 1890. The trusts were dissolved, but in legal form only, for the combinations continued under other names. Instead of a combination of several distinct companies, the various properties were either united into a single corporation or bound together under a form of organization known as the "holding company." A holding company is merely a corporation which holds shares of stock in other corporations, but does not itself conduct any business. Several of the States, notably New Jersey, have passed laws favorable to corporations wishing to reorganize under this form for an interstate business. While the technical "trust" was legally destroyed, the name survives as a designation for all large combinations of capital, especially if they are thought to possess monopoly power.

370. Open price associations. — The vigorous enforcement of the Sherman Anti-trust Act during the decade 1900–1910 led to still another style of combination, looser than the pools and trusts which it succeeded. Statistical Associations, so-called, were formed of the members formerly associated in the combination, for the ostensible purpose of exchanging information as to production, orders, and shipments. No agreements were made, but prices were discussed and these usually held until the next meeting. This form of association came to an end about 1907, and when the panic of that year occurred the market became very unsettled and demoralized. At this juncture Mr. E. H. Gary, President of the United States Steel Corporation, instituted what were known as the "Gary dinners." The officers of the Steel Corporation invited representatives of competing corporations to meet for a "full exchange of information as to the condition of the various businesses represented and a frank interchange of views with regard to the business situation." Two ideas underlay these meetings: — first, that a spirit of coöperation should be built up among competitors, and secondly, that competitors should be induced to exchange information. Incidentally, prices were stabilized for about two years. As the market became stabilized, price-cutting was renewed and this form of association was discontinued in the iron and steel industry about 1909.

There followed an interesting experiment known as open price associations, instituted by Mr. A. J. Eddy, a Chicago attorney. The principal elements of this plan are a reporting system, a frank exchange of information, and a spirit of friendliness among competitors. The purpose was to bring together into an open price association all the active competitors in a given business, for these members to exchange information as to production, sales, prices (until July, 1920), and other matters, with each other, and to have frequent meetings. Over one hundred such associations were organized and seem to have prevented excessive competition in the industries

where formed. Indeed, their efforts in this respect were so successful that in December, 1921, the practices of one of them was declared by the Supreme Court to be in contravention of the Anti-trust Act, and a check was given to the movement.

371. The consolidation movement. — The early combinations, though important, were few in number. It remained for the closing years of the nineteenth century to witness the wholesale reorganization of manufacturing, transportation, and trading enterprises into industrial consolidations.

According to a competent financial authority [1] the following table represents the growth of the "industrial" (manufacturing and commercial) and gas trusts in the United States from 1860 to 1900, not including combinations in banking, shipping, railroad transportation, etc:

Decade	Number Organizations	Total Nominal Capital
1860–1869	2	$13,000,000
1870–1879	4	135,000,000
1880–1889	18	288,000,000
1890–1899	157	3,150,000,000
Total, 40 years	181	$3,586,000,000

The movement began on a large scale in 1898, and ran at fever heat through the two following years: in the single year 1899 new combinations were reported with a nominal capital of $3,512,000,000, of which, however, one quarter represented an inflation of the original capital of the reorganized companies; in the year 1901 the United States Steel Corporation was organized with a capital of $1,100,000,000 in addition to a bonded indebtedness of $304,000,000. Promoters and speculators took advantage of the eagerness of the investing public to purchase industrial securities, and floated many questionable enterprises. Over six billion dollars' worth of securities

[1] The Commercial Year Book, 1900, Book I, Vol. V, p. 564.

was marketed by the new industrial trusts before the movement spent itself. By 1903, however, it came to an end; the collapse of the ship-building trust revealed some of the evils of fraudulent trust financiering, and the decline of the stocks of most of the new companies disillusioned the investor and brought about a general reaction in public sentiment. Many exaggerated estimates have been made of the extent of this movement, but the most trustworthy count at the time it was made was probably that of the census of 1900, from which pools and simple expansion of existing businesses have been excluded. One hundred and eighty-five industrial combinations were reported, comprising less than one half of 1 per cent. of the establishments in the country, but owning 15 per cent. of the capital, employing 8 per cent. of the employees, and turning out 14 per cent. of the manufactured products in the United States. The greatest combinations had taken place in the iron and steel industry, which alone produced nearly one third of the gross value of the products of all industrial combinations. The largest combination of all, however — the United States Steel Corporation — was not included in this report. The table on page 478 gives a summary of the census statistics of trusts in 1900, arranged by industries.

372. **Extent of the trust movement.** — After the publication of this conservative report, other combinations were effected which greatly changed these figures. In 1904 it was estimated that 318 industrial trusts with a capital of $7,246,000,000 and representing consolidations of nearly 5300 distinct plants existed in the United States; of this capital over one third was controlled by seven great organizations. While these figures are far from trustworthy they at least serve to indicate roughly the extent to which combinations of various sorts have entered into our national industrial life. They controlled more or less successfully the production of tobacco, petroleum, sugar, linseed oil, iron and steel, copper, ship-building, beef, starch, flour, cottonseed oil, candy, chewing gum,

candles, salt, ice, glucose, crackers, matches, whisky, anthracite coal, fertilizers, tin cans, farming tools, locomotives, writing-paper, school furniture, sewer pipe, glassware, rubber goods, buttons, leather, electrical supplies, etc.

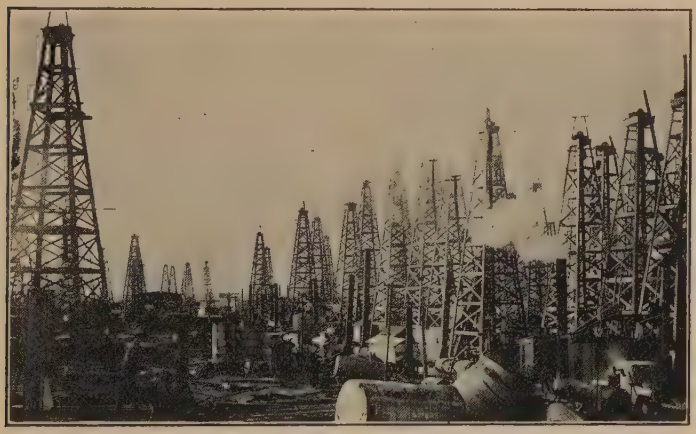
INDUSTRIAL COMBINATIONS

Industry	No. of Comb.	No. of Plants	Capital	Average No. of Wage-Earners	Cost of Materials	Value of Products
Iron and steel	40	447	$341,779,954	145,609	$325,630,784	$508,626,482
Food and kindred products	22	282	247,944,675	33,165	243,315,234	285,941,066
Chemicals and allied products	15	250	176,502,835	28,401	142,572,256	184,914,344
Metals and metal products other than iron and steel	11	89	118,519,401	20,522	131,020,638	180,154,703
Liquors and beverages	28	219	118,489,158	7,624	19,117,973	93,432,274
Vehicles for land transportation	6	65	85,965,683	34,422	56,600,518	85,985,533
Tobacco	4	41	16,191,818	17,661	23,809,804	74,063,029
Textiles	8	72	92,468,606	37,723	41,919,311	71,888,202
Leather and its finished products	5	100	62,734,011	9,898	35,463,655	45,684,829
Paper and printing	7	116	59,271,691	16,706	24,554,364	44,418,417
Clay, glass and stone products	15	180	46,878,928	20,294	6,474,816	23,258,182
Lumber and its manufactures	8	61	24,470,281	10,778	11,028,757	20,378,815
Miscellaneous industries	16	118	45,408,869	17,243	28,158,224	48,605,073
Total	185	2040	$1,436,625,910	400,046	$1,089,666,334	$1,667,350,949

The transportation business was one of the first to be organized in the hands of a few monopolistic companies, — on a national scale in the case of the steam railroads, and locally for the street railways. Telegraph, telephone, express, gas, water and electric lighting, and other natural monopolies have long since been brought under centralized control. It is evident, therefore, that combination and organization of immense industries under unified control are facts of our modern indus-

trial life which must be recognized and studied if we are to understand present economic tendencies.

373. The Standard Oil Trust. — A brief sketch of the development of the Standard Oil Company, the oldest and still the most powerful industrial trust, will bring out some of these points more clearly. For several years after the discovery of petroleum in 1859, the business of producing and refining it was carried on by private individuals under highly competitive conditions. In 1865 a Cleveland firm, which had steadily



Oil Wells

This is a general view of the gushers and oil wells at Spindle Top, Texas. Large discoveries of oil were made in southern Texas in 1901, and the oil regions were soon covered with derricks and perforated with wells.

prospered as a result of good management and improved methods of refining the oil, was organized under the name of the Standard Oil Company, with a capital of $100,000. They gradually extended their operations, acquired control of rival refineries, sometimes by unfair methods, and established agencies in other States. In 1872, through the South Improvement Company, they secured rebates from the railways, not merely on their own oil, but on all shipments by their competitors.

While this conspiracy was quickly discovered and the South Improvement Company, which was immediately disowned by the Standard Oil, lost its charter, the parent company obtained discriminating rates in its favor soon after and enjoyed them for certainly thirty years thereafter. On this point Commissioner Garfield, of the Bureau of Corporations, in his report of May 2, 1906, on the Standard Oil Company, made the following emphatic statement: "The Standard Oil Company has habitually received from the railroads, and is now receiving, secret rates and other unjust and illegal discriminations."

Improvements were, however, also made in the methods of production, of transporting the oil by means of tank cars and of pipe lines, of storage in huge tanks erected at convenient points, and of refining the oil and utilizing the various by-products. The company soon obtained a practical monopoly in the business of refining oil, and more recently has obtained possession of a portion of the oil-producing regions. By reason of its great economies in production and power of monopolistic control it has been able to reduce the price of oil, and at the same time to pay enormous profits to the stockholders. In 1882 it was publicly organized as a trust, but when that form of organization was declared illegal the trust was dissolved and the business was carried on by the corporations which had been parties to the trust, the several corporations operating under the corporation laws of different States. In 1899 the Standard Oil Company of New Jersey increased its capital stock and exchanged the new securities for the stock of Standard Oil Companies operating in other States. From 1899 to 1911 the Standard Oil trust operated under the "holding company" form. In 1911, as a result of prosecution by the Federal government under the Sherman Anti-trust Act, the Supreme Court held that the New Jersey Standard Oil Company, the holding corporation, was an illegal combination in restraint of trade and ordered its dissolution. It shares were distributed among the share-holders of the constituent com-

panies, and accordingly the Standard Oil Company consists today of some thirty-six corporations.

374. Advantages of combinations. — Many of the advantages claimed for industrial combinations are due as much to large-scale operation as to combination, and may be enjoyed by independent producers not within the combination. The following are the chief economies of production effected: (1) only the best located and most efficiently equipped plants are operated; (2) obsolete machinery is scrapped and only the best is used, thus applying the latest inventions and utilizing

By-product Coke Ovens

In the old-fashioned bee-hive coke ovens the valuable by-products released in the process of coking coal were lost. The modern by-product coke ovens permit the saving of the gas, ammonia, acids, coal tar and its derivatives, which in turn form the basis of new industries.

patents; (3) the best ideas in the combining plants are exchanged, and the efficiency of all raised to the level of the best, as in the sugar and tobacco trusts; (4) by-products are utilized; (5) the best talent and organizing ability are obtained; (6) there is greater division of labor, and better organization.

The peculiar economies effected by the trust lie, however, rather in the savings in marketing, and these may be sum-

marized as follows: (7) better bargaining power exists in the purchase of raw materials; (8) there is better command over capital and credit facilities; (9) the cost of advertising, of traveling salesmen, and of other items which figure largely in a strongly competitive business, may be materially reduced under combination; (10) saving in cross freights is effected in the case of those trusts which have plants located in various parts of the country, and which can fill orders from the nearest plant; (11) various other economies in the organization of the business and the sale of the products.

375. Evils of capitalistic monopolies. — In so far as the industrial combination secures economies of production and marketing which would not otherwise have been effected, it is justified as an efficient mode of organization. Savings of this nature as a result of large-scale methods are, however, not new, but have characterized the manufacturing industries of the United States since the middle of the nineteenth century and have contributed largely to the concentration of business. The aim of industrial combinations is rather to obtain a monopoly position and to control prices. When they have effected economies, they have not lowered the prices of their products to the public in proportion, and in some cases have even raised them.

The most serious indictment against industrial combinations, however, is not that they have raised prices and pocketed monopoly profits, but that they have used unfair methods. Among these may be mentioned the practice of crushing smaller competitors by local price cutting, by the establishment of bogus independent concerns, and by the sale of certain brands at a loss; refusal to sell to dealers unless these refuse to sell products of competitors; the receipt of rebates and discriminating favors from the railroads; and other unfair practices to strangle competition. Even more serious has been the legislative corruption by means of which "big business" has contrived to obtain valuable rights and privileges, immunity from attack, or special favors.

ARMOUR AND COMPANY'S PLANT AT CHICAGO

The plants under the control of Armour and Company include the meat-packing houses, fertilizer works, soap factory, and hair and glue factory. The packing houses are among the largest in the world, the glue factory is one of the largest on this continent, and the soap factory is also an important one.

376. Trust legislation. — Under the common law monopoly was a crime, punishable by fine and imprisonment, and agreements in restraint of trade, carried so far as to be unreasonable, were held to be illegal and unenforceable. There arose a popular demand, however, for more positive legislation against monopoly and combination. In 1887 Congress passed the Interstate Commerce Act, prohibiting pools among railways, and three years later the Sherman Anti-trust Law, which provided that "every contract, combination in the form of a trust or otherwise, or conspiracy in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared illegal." At the same time there began the enactment of anti-trust legislation by the States; thirty-two States and two Territories in all passed such laws, and in seventeen States anti-trust provisions were inserted in the State constitutions. These enactments were very severe, but before they could be fairly tested in the courts, they were deprived of all power to control the growing trusts by the lax policy of the three "charter-granting" States, New Jersey, (until 1913) Delaware, and Maine, which not only failed to pass any anti-trust legislation, but greatly relaxed their existing statutes. Ninety-five per cent. of the trusts were accordingly incorporated in these States, and as a corporation can be deprived of its charter only for violation of the laws of the State in which it is incorporated, the other States were practically helpless. Defects in the Federal acts were soon discovered also, and were partially remedied by the Elkins Law of 1903, which facilitated prosecutions under the Interstate Commerce Act, and by the creation of the Federal Bureau of Corporations with power to make "diligent investigation into the organization, conduct, and management" of corporations engaged in interstate commerce (railroads excepted).

Under President Roosevelt, moreover, the Federal government made a vigorous effort to apply existing legislation to the evils of monopoly and combination. Within the decade 1901

to 1911 eighty-one suits were brought and prosecutions instituted by the Department of Justice under the Sherman Anti-trust Act, which forbade illegal combinations in restraint of trade. In 1904 a stop was put to railroad consolidation by the decision in the Northern Securities case, which declared the combination of parallel lines to be illegal. During the year 1911 cases against the Tobacco and Standard Oil companies were won, and these trusts were dissolved, though apparently without much effect upon the industrial situation.

The purpose of this legislation and of the court decisions based thereon was to destroy monopoly and to restore competition. During the last decade, however, more attention has been given to the establishment and maintenance of fair methods of competition. Investigations into the business methods of big business had disclosed many unfair and harmful practices, and against these the more recent legislation has been directed. In 1914 two laws were enacted on this subject. The first of these declared "unfair methods of competition in commerce" to be unlawful, and created a Federal Trade Commission of five members to administer the act. The commission superseded the former Bureau of Corporations, and was given power to investigate charges of unfair methods, to report its findings, and to order the offender to cease using these unfair methods. Appeal may be made to the courts to enforce such orders. This act was directed against unfair practices by any business, and has been more frequently invoked against small offenders than against "big business."

The Clayton Anti-trust Act, the second of these two laws, also defined specifically certain unfair practices, such as discrimination in prices between different purchasers, exclusive contracts which prevent purchasers of goods from dealing in competing goods, etc., all of which were declared unlawful. The act also prohibited the acquisition by one corporation of stock in another, where the tendency would be "substantially to lessen competition." Interlocking direc-

torates, the relations of common carriers with construction companies, and similar practices were also restricted.

In two respects, however, the legislation with regard to combinations has been made more liberal. It was felt that the fullest possible coöperation among merchants engaged in foreign trade was desirable, if they were to compete in foreign markets on a basis of equality with merchants from other countries. Accordingly the Webb Export Trade Act of 1918 provided that American exporters might organize associations for conducting export trade without thereby rendering themselves liable for violation of the anti-trust laws. The same principle was applied also in the Coöperative Marketing Act, passed in 1922, which recognizes the right of farmers, ranchers, and growers to combine for the purpose of effecting more efficient distribution of their products.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXVII

When they first developed industrial combinations sought monopoly power and not infrequently resorted to unfair practices in the pursuit of their aim. The trust problem, as it was first presented, was how to curb these monopolistic enterprises and restore competition. As time went on certain advantages of consolidation and large-scale production were recognized, and the problem has become one of regulation rather than suppression.

1. Does the tendency towards combination indicate an irresistible movement to socialism or to government management of all productions? [Chicago Conference on Trusts, 569; A. B. Nettleton, Trusts or Competition, 267–273.]

2. Can the large establishment always undersell the small one?

3. Are you personally familiar with any agreement to control prices? What was its effect?

4. "Would it be a good thing for society if a trust made great economies in production, crowded out its smaller competitors, and maintained prices just where they were before, dividing among its shareholders the amounts saved?"—[Fetter.]

5. Do you know of any instances where a trust has unfairly crushed out competition? [G. H. Montague, 84; J. W. Jenks, 155; E. von Halle,

22; H. D. Lloyd, Wealth against Commonwealth; Rep. Ind. Com., I, 20 (and references to testimony), XIII, xxiii (and testimony).]

6. Relate the history of some of the most important industrial combinations, as the standard oil, steel, ship-building, international marine, copper, etc. [Rep. Ind. Com., XIII, xli-cxxii; Moody, Truth about Trusts; Ripley, Trusts, Pools, and Corporations; Ida Tarbell, Hist. of Standard Oil Company.]

7. In his testimony before the Industrial Commission, Mr. Havemeyer, President of the American Sugar Refining Company, said that "the mother of all trusts is the customs tariff law." Is this true? [Rep. Ind. Com., XIII, cxl–clvi, I, 23 (and references to testimony); Chicago Conference on Trusts, 171; Jenks, 44–48; Collier, The Trusts, 242–259; G. L. Bolen, Plain Facts, 112, 121.]

8. Do you know of any trusts built up on legal monopoly (patents)? Would it be desirable to change the patent laws? [Jenks, Trust Problem, 220; Ely, Trusts and Monopoly, 267.]

9. Should you prefer to engage in business for yourself or accept a position in a trust? In which do you think your chances of success would be greater? [Chicago Conference on Trusts, 57; Montague, Trusts of To-day, 90; Rep. Ind. Com., I, 31 (and references to testimony).]

10. Do you know any case where a monopoly has permanently reduced prices? Why? [Rep. Ind. Com., XIII, 19 (and references to testimony); A. Marshall, Principles of Economics, 130, note 1.]

11. Are there any other effects not mentioned in the text which have resulted from trusts? [Jenks, Trust Problem, chap. 10; Rep. Ind. Com., I, 33 (and references to testimony), XIII, 32.]

12. Describe the methods of promoting and financing a modern trust. [Meade, Trust Finance, chaps. 4–8; Jenks, Trust Problem, chap. 5; Collier, chap. 9; Rep. Ind. Com., XIII, 7 (and references to testimony).]

13. What is stock watering and why is it resorted to? [Hadley, Railroad Transportation, 54, note; Jenks, chap. 6; Meade, chap. 16, especially p. 303; Collier, chap. 11; Rep. Ind. Com., I, 12–16 (and references to testimony).]

14. Could harmonious action by all the States be secured to control trusts? [K. Coman, 330; Jenks, chap. 13; Montague, Trusts of To-day, 162–174.]

15. Why has Congress no power to control business wholly within a State?

16. What is interstate commerce? [Interstate Commerce Act, sec. 1; also in W. L. Snyder, The Interstate Commerce Act, 32.]

17. Would the advantages of large-scale production, together with the existence of combination and of monopoly, warrant the government ownership and management of a business?

18. Do you think the government has a right to say how private individuals shall carry on their business, as, for example, in a factory or in the meat-slaughtering industry?

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DOMINION OF CANADA
L. Manitoba
L. Winnipeg
Winnipeg
Vancouver
Spokane
Seattle
WASH.
Olympia
Mullan
MONT.
Helena
Butte
Pillings
Grangeville
Portland
Salem
OREGON
IDAHO
Boise
WYO.
Lander
Missouri
Grand Forks
N. DAK.
Bismarck
Oakes
Gettysburg
S. DAK.
Pierre
Rapid Cy.
Yankton
Sioux Cy.
Des Moines
IOWA
Burlington
Clinton
Chicago
Heeia
Springfield
ILL.
Jefferson Cy.
St. Louis
MO.
Cairo
Paducah
Shawneetown
Cincinnati
Louisville
Frankfort
KY.
Lexington
Columbus
Toledo
Cleveland
Wheeling
Pittsburg
PA.
Harrisburg
Trenton
Philadelphia
New York
Albany
Scranton
Buffalo
Niagara
Utica
N.Y.
Boston
Providence
Concord
Portland
ME.
Montpelier
Ottawa
Montreal
Quebec
Georgian Bay
Mackinaw
Frankfort
Lansing
MICH.
Milwaukee
Madison
Minneapolis
St. Paul
Superior
Eau Claire
Duluth
MINN.
WIS.
L. Superior
L. Michigan
L. Huron
L. Erie
Ottawa R.
St. Lawrence R.
Ogden
Salt Lake Cy.
UTAH
Great Salt L.
Cheyenne
Denver
COLO.
Pueblo
Lincoln
Omaha
NEBR.
Topeka
KANS.
Kansas Cy.
Sacramento
Carson Cy.
NEV.
San Francisco
CAL.
Keeler
Los Angeles
San Diego
Santa Fe
Albuquerque
N. MEX.
ARIZ.
Phoenix
Yuma
Benson
El Paso
Colorado R.
Guthrie
OKLA.
Dallas
Ft. Worth
TEXAS
Austin
Houston
Galveston
Laredo
Rio Grande
Red R.
Little Rock
ARK.
Memphis
Nashville
TENN.
Knoxville
Bristol
Lynchburg
Richmond
Norfolk
Raleigh
N. CAR.
Columbia
S. CAR.
Charleston
Atlanta
GA.
Savannah
Jacksonville
FLA.
Tampa
Key West
Montgomery
ALA.
Jackson
MISS.
Mississippi R.
New Orleans
Tallahassee
Baltimore
Washington
Charleston
Cincinnati
Ohio R.
Pittsburg
Wheeling
Toledo
Cleveland
Lansing
Niagara
Buffalo
Albany
Scranton
Harrisburg
Trenton
Philadelphia
New York
Boston
Providence
Concord
Portland
Montpelier
Ottawa
Montreal
Quebec
Georgian Bay
Mackinaw
Frankfort
Milwaukee
Madison
Minneapolis
St. Paul
Superior
Duluth
Eau Claire
Des Moines
Burlington
Springfield
Cairo
Paducah
Nashville
Memphis
Little Rock
Montgomery
Jackson
New Orleans
Galveston
Houston
Austin
Dallas
Ft. Worth
Laredo
Matamoros
Guaymas
Mazatlan
MEXICO
GULF OF MEXICO
Gulf of California
LOWER CALIFORNIA
PACIFIC OCEAN
ATLANTIC OCEAN
CUBA
BAHAMA ISLANDS
HARRIMAN GROUP
SHOWN IN BLUE LINES
Southern Pacific R.R.
Union Pacific R.R.
Oregon Short Line R.R.
Oregon Railroad & Navigation Co.
Leavenworth, Kansas & Western Ry.
Chicago & Alton Railway
VANDERBILT GROUP
SHOWN IN RED LINES
New York Central & Hudson Riv. R.R.
Lake Shore & Michigan Southern Ry.
New York, Chicago & St. Louis R.R.
Michigan Central R.R.
Delaware & Hudson R.R.
Cleveland, Cincinnati, Chicago & St. Louis Ry.
Chicago & Northwestern Ry.
Chicago, St. Paul, Minneapolis & Omaha Ry.
Fremont, Elkhorn & Missouri Val. R.R.
Delaware, Lackawanna & Western R.R.
Lake Erie & Western Railroad
Pittsburg & Lake Erie Railroad
Indiana, Illinois & Iowa Railroad
L.L. POATES ENGR'G CO., N.Y.

CHAPTER XXVIII

TRANSPORTATION AND COMMUNICATION

377. Railroad building. — The period of rapid railroad construction came to an end in the nineteenth century; since that time there has been a slower growth. Between 1900 and 1913 the railway net grew from 192,556 to 253,470 miles of line, or an average of about 5000 miles a year. During the World War there was an almost complete cessation of new building as the free capital of the country was diverted into war channels; and since that event the earnings of the railroads have been insufficient to warrant additions to their lines. In 1920 the railroad mileage was only 250,834, or an actual decrease of 2600 miles since 1913; a greater mileage was abandoned than constructed during the war period. Most of the new building during the twentieth century was in the south and southwest, which were least well supplied with railroad facilities at the beginning of the period. The value of the railroads of the United States was tentatively set by the Interstate Commerce Commission in 1920 at $18,900,000,000, which is almost as much as the capital invested in manufactures and about half the value of the farms and farm property.

The development of track and equipment has kept pace with the growth in mileage. Rails have become steadily longer and heavier, until to-day 60 foot rails weighing 2000 pounds are not uncommon. The growing cost of wooden ties has led some roads to experiment with steel ties, though these have not yet proved very successful. Locomotives have been made more powerful in order to handle the increasing traffic, and have steadily become larger and heavier; one of the

recent types weighs over 760,000 pounds. The construction of all steel passenger and freight cars has permitted much greater speed and has at the same time decreased the danger of travel. The capacity of the typical freight car has also been greatly enlarged, and in other respects the railroad system has been improved to meet the constantly growing demands of our internal commerce.

378. Development of electric railways. — The growth of electric railways outside of cities belongs almost entirely to the period since 1895, and has reached its highest development in the central States of Ohio, Michigan, and Indiana. Almost 17,000 miles of interurban lines existed in 1902, and by 1920 had grown rapidly to over 47,000. The roads possess certain advantages over steam roads which have made them very popular: owing to the fact that no locomotives are necessary, the cars can be sent off single and hence frequent service is possible; frequent stops, with comparatively high speed, are also made possible by this same cause; fares are much lower because of the greater economy of construction and operation. The convenience of the trolley has greatly increased the amount of travel in the districts through which they have been built, and has contributed largely to the interchange of business between the cities and the small towns and farms. The interurban electric lines have had a distinct socializing effect upon farm life, breaking down its isolation, introducing higher standards, and broadening the horizon of the country dwellers. They afford a profitable outlet, by means of the express and freight trolley, for the produce of the farm, bring the superior school facilities of the town within reach of the country home, and render the markets and shops easily accessible. As yet the possibilities of the freight trolley have not been fully exploited, but the future will doubtless see a great development of this phase of their activity.

The superiority of electricity to steam as a motive power for railroad transportation has led also to the electrification

GOULD GROUP
SHOWN IN BLUE LINES

Wabash R.R.
Missouri Pacific Ry
St. Louis, Iron Mtn & Southern Ry.
International & Great Northern Ry.
Wheeling & Lake Erie Railroad
Western Maryland Railroad
West Virginia Central
Texas & Pacific Railway
Denver & Rio Grande Railroad

PENNSYLVANIA GROUP
SHOWN IN RED LINES

Pennsylvania R.R.
Pittsburg, Ft. Wayne & Chicago R.R.
Pittsburg, Cincinnati, Chicago & St. Louis R.R.
Baltimore & Ohio R.R.
Philadelphia & Reading R.R.
Chesapeake & Ohio R.R.
Norfolk & Western R.R.
Long Island R.R.

HILL GROUP
SHOWN IN GREEN LINES

Chicago, Burlington & Quincy R.R.
Burlington & Missouri River R.R.
Great Northern Ry.
Northern Pacific Ry.
The Erie Railroad.

L.L. POATES ENGR'G CO., N.Y.

of steam railroads. The opening years of the twentieth century have seen a considerable application of electric traction to suburban service and to city terminals where frequent stops and cleanliness are important considerations; the latter factor has led to its use in long tunnels and subways, as on the roads leading into New York City. It has been found especially valuable on heavy mountain grades, where steam pressure inevitably decreases but where the tractive power of an electric engine can be maintained steadily at its maximum; in those sections where coal is scarce and hydro-electric power available the advantage is still greater.

379. Consolidation. — Beginning with 1898 the consolidation of railroads proceeded very rapidly, until it was finally checked by the decision in the Northern Securities case (1904) which declared the combination of parallel roads to be illegal. These consolidations had been brought about by purchase in some cases, by lease or by means of stock-holdings in others.

Most of the connecting lines were consolidated into a few great systems which were controlled by groups of capitalists. The following were the most important "groups," with the approximate mileage for 1906, although these figures varied from year to year: Vanderbilt (21,353), Pennsylvania (16,836), Harriman (14,725), Hill (20,242), Morgan (18,879), Gould (16,520), Moore (13,028), Rockefeller (10,293). These great consolidations have followed in the main the territorial groupings of railways; each system served for the most part a particular district and in some cases developed special kinds of traffic.

Opposition to railroad combination first found expression in court decisions. In 1904 the Supreme Court in the Northern Securities case declared the combination of the Harriman and Hill interests illegal; in 1912 it ordered the Union Pacific to dispose of its Southern Pacific stock; and in 1914 the new Haven combination was also broken up. Congress next enacted legislation against combinations for the purpose of restoring competition. The Panama Canal Act of 1912 pro-

vided that after 1914 railroads should not control water transportation lines operating through the Canal nor in other cases where competition might exist. And in 1914 the Clayton Anti-trust Act forbade one carrier to own stock in another when the effect would be to lessen competition between them. It was evidently the purpose of these laws to force competition by legislative edict.

380. Federal regulation. — Some of the difficulties in the Federal regulation of interstate commerce were removed by the Elkins Act in 1903, which defined more clearly unfair discrimination and rebating, and expedited the trial of roads against which charges were brought. It failed, however, to provide any machinery for compelling railroads to reduce unreasonably high rates, and applied only to personal discriminations. The Hepburn Act of 1906 went farther than any previous legislation in enlarging the powers of the Interstate Commerce Commission, and definitely extended the principle of detailed governmental supervision, which had been previously exercised only in the case of the national banks, over the common carriers of the country — express, sleeping car, and pipe line companies, switching and terminal facilities, as well as the railroads themselves. It forbade the granting of free passes, prohibited railroads from carrying their own products to market, strengthened the law against rebates, placed private car lines, etc., under the control of the commission, and provided that it should " determine and prescribe what will be the just and reasonable rate " ; the final control over rates was, however, left with the courts.

In 1910 the Mann-Elkins Act carried government control another step forward. Express, telegraph, telephone, and cable companies were now brought under the control of the Interstate Commerce Commission, and a Commerce Court was established to hear all appeals from the decisions of the commission, thus relieving the circuit court of these cases and providing for an expert tribunal. Two years later Congress proceeded to abolish the commerce court as a result of

dissatisfaction with the character of its decisions. The most important change in the power of the Interstate Commerce Commission was in reference to the long and short haul. The original act of 1887 had provided that a greater charge could not be made for a shorter than for a longer haul over the same line and in the same direction, under substantially similar conditions. In 1887 the Supreme Court had greatly modified the effectiveness of this provision by ruling that competition constituted dissimilar conditions, and thus justified larger charges for the short haul at competitive points. The old phrase, "under substantially similar circumstances and conditions," was now eliminated, and such larger charges for the short haul thereby made illegal. Another important provision of the new act was that which gave to the commission the power to suspend all proposed increases in rates until it could hold hearings and determine their reasonableness.

In spite of the early limitations and the recent extension in the scope of its powers the Interstate Commerce Commission resulted in much good; by its numerous decisions it developed a body of more or less authoritative rules for the regulation of railways; the right of the Federal government to control them, at first disputed, was now thoroughly established; and finally there was created a system of machinery for dealing with them which could easily be enlarged or entrusted with greater powers if that seems desirable. The principle and the character of governmental regulation of railways in the United States have been determined, and the problem of the future is simply how far that control shall go.

381. Railroads during the War. — Even before the World War the railroads of the country had fallen into financial difficulties. Federal and state legislation had been passed to compel reductions of railroad rates; but now it was discovered that the new rates were insufficient to pay expenses. In 1910 and again in 1913 the railroads asked to have their rates increased, but the Interstate Commerce Commission refused the larger part of their demands. When the war

broke out in 1914 the railroads were at a low ebb, with depleted resources and insufficient equipment. By October 1, 1915, nearly 42,000 miles of railroad, or one sixth of all in the United States, were in the hands of receivers. During the next three years, during which the war threw a great increase of traffic upon them, they had increasing difficulty in meeting the demands of the shippers.

When the United States entered the war some form of unified control was necessary, and this was obtained by the operation of the roads as a unit during the period of the war. By a proclamation of December 26, 1917, the President authorized Federal control and placed the railroads under a director-general, who administered them until February 29, 1920. At that time Federal administration ceased and the railroads were handed back to private ownership and management. Two objects had been pursued during the period of Federal administration: first, that of operating the roads as a unit in order to make them contribute to winning the war; and second, to increase efficiency and reduce costs by coöperation among the railroads. The war period of Federal administration had pointed some valuable lessons both to the owners and to Congress, and the terms upon which the railroads were to be managed in the future were different from those which had prevailed before. Those conditions were laid down in the Transportation Act of 1920, which to some extent reversed previous railroad policy.

382. The Transportation Act of 1920. — The idea that competition must be enforced between railroads was abandoned in this act. Pooling, forbidden by the original act in 1887, was now legalized under the supervision of the Interstate Commerce Commission. Plans were also made for the consolidation of the railroads of the country into a limited number of competitive systems. Power was given to the Commission to regulate railroad capitalization, car service, and the division of the joint rates. But the most important provisions of the Act were those dealing with rates and with

labor. The Commission is given the power to fix both maximum and minimum rates; in general these must be "fair." If the net operating income of any railroad shall exceed 6 per cent., half of the excess is to constitute a contingent fund to be loaned to carriers for the purpose of retiring maturing obligations or to purchase equipment. In a word, the purpose is to insure the railroads a just return, but to prevent any road from obtaining an excessive one.

The labor provisions of the Act created two kinds of tribunals to adjust difficulties. Railroad Boards of Labor Adjustment, composed of employers and employees, are to settle disputes other than wages. To settle wage disputes a salaried Railroad Labor Board is created, which is to take into account a number of conditions bearing on the subject. This Board consists of three representatives each of the railroads, the employees, and the public, thus giving official recognition to the interest of the public in such matters. Strikes are not forbidden, nor is compulsory arbitration provided, but every effort is made to obtain the peaceful settlement of disputes.

383. Control by the States. — Under our dual system of government the necessary control may be exercised either by the States or by the Federal government. The early attempts of the State governments have already been described (Sec. 279). In general these have attempted to secure the needed regulation by establishing railroad commissions. In the South and West these have usually been mandatory, that is, they have been clothed with power to establish and enforce maximum rates. In the eastern and central States, on the other hand, the rule has been the creation of commissions with supervisory powers merely, whose duty it was to investigate and make public all charges against the railways. With the growth of the great railway systems the State governments have become clearly inadequate to cope with the problems involved, and, while the State commissions have done valuable service, broader powers of control were seen to be necessary. These could be exercised only by the Federal government.

After the United States entered the war, the Railroad Administration proceeded with little regard to the rights of State commissions. In its efforts to obtain unified operation and efficient service, it centralized control to a hitherto unheard-of degree. After the armistice, however, the State commissions insisted upon their rights and the question of final authority came before the Supreme Court, which in 1919 upheld the authority of the Federal Administration as a war power. Finally the Transportation Act of 1920 confirmed the superior authority of the Interstate Commerce Commission over the State commissions as a permanent policy. There has been a gradual tightening of national control upon the entire transportation system until to-day the States have little effective rate-making authority and in other respects are subordinated to Federal authority. This is a process which has been going on for a long time and its settlement in favor of national control over national railroad systems was apparently inevitable.

384. Water transportation: rivers. — The decline in the amount of traffic carried on our rivers, which began in the sixties, has continued without intermission. There is a steady diversion of traffic to the railroads, and in 1914 it was estimated that the rivers carried less than four per cent. as much as that transported by rail. Almost the only traffic still remaining on the rivers is that of cheap, bulky commodities, such as coal, stone, sand, lumber, and wood, together with cotton on the lower Mississippi.

Canal traffic has followed much the same course as the river trade; there has been a continuous falling off. The older canals, which have not been improved or deepened, have become utterly valueless except for occasional pleasure boats. Even the Erie Canal, on which over $165,000,000 has been spent since 1903 in widening and deepening, has not as yet shown any increase in traffic to justify this outlay. On the other hand a few artificial ship channels, which are connecting links between important bodies of navigable water, have

shown a notable development. Thus the Sault Ste. Marie Canal between Lake Superior and the lower lakes, an indispensable link in the Great Lakes system, has carried a constantly growing traffic. In 1900 it had become the greatest internal waterway in the world, with five times as many ships as passed through the Suez Canal and a traffic tonnage equal to nearly 40 per cent. of the entire railroad system of the United States. Twenty years later over 68,000,000 freight tons passed through it annually. New canals have also been built: the Cape Cod Canal, connecting Buzzard's Bay and Barnstable Bay and shortening and making safe the water route between New York City and Boston, was completed in 1914; in the same year there was opened the Houston Ship Canal, designed to provide Houston, Texas, with direct ocean communication.

The Panama Canal, completed in August, 1914, at a total cost of $365,000,000, is the greatest work of this kind in the world, and has already caused a shifting of trade routes. The interruption of trade due to the World War has prevented the full utilization of this canal, though even in 1916 some 1253 vessels with cargoes of 4,931,000 tons passed through it. In 1921 the volume of cargo passing through amounted to 11,236,119 tons.

385. Lake transportation. — In contrast with the river and canal traffic, that through the Great Lakes has shown a continuous and latterly a remarkable increase. The movements of freight over the Lake system as a whole are not recorded, but a good index of this trade is that passing through the Sault Ste. Marie Canal; in 1900 the tonnage of vessels passing through this canal was 8,454,000 tons, and in 1919 it was 68,236,000 tons. These "unsalted seas" afford a deep and practically unbroken channel of trade for 1000 miles, providing cheap transportation for the heavy and bulky commodities produced in the area which they serve. This branch of water transportation alone has maintained itself against railroad competition, since it offers lower rates. The freight

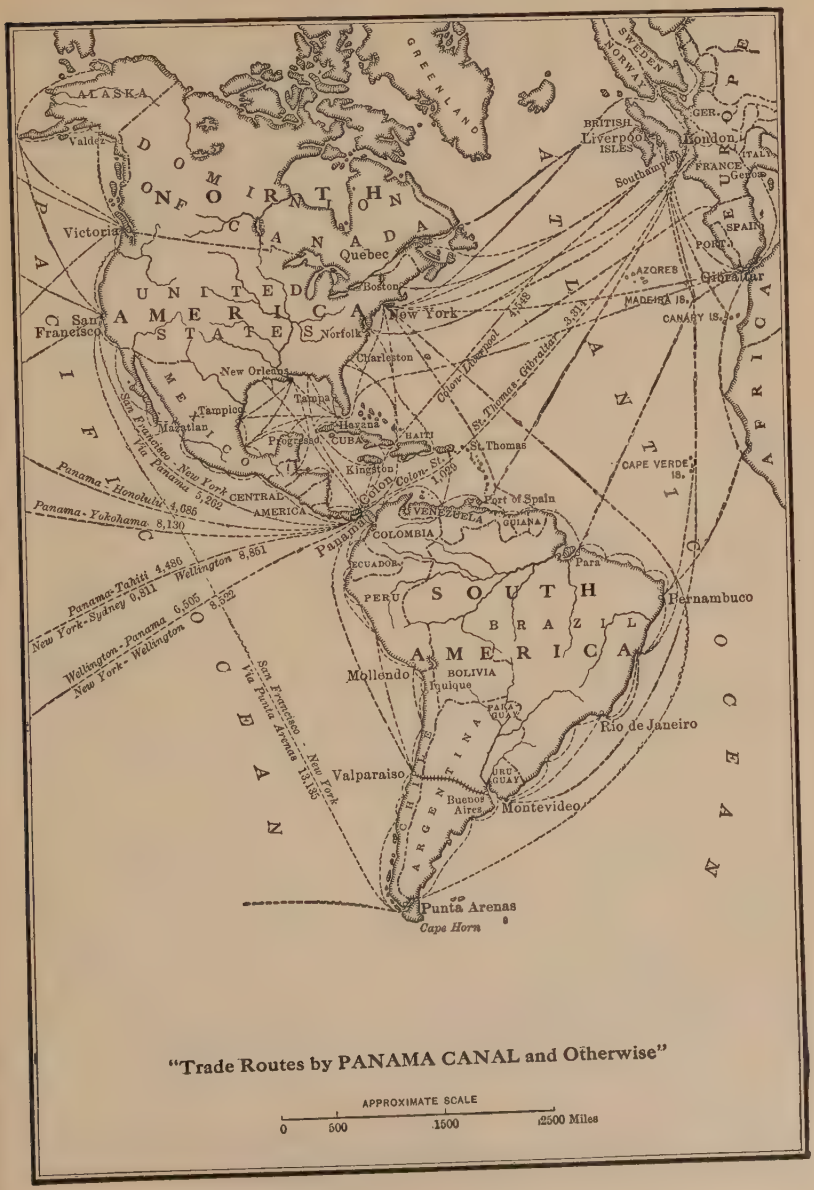
rates on wheat from Chicago to New York City in 1900 was 4.42 cents per bushel by Lake and canal as against 9.98 cents by rail; in 1916 the two rates were 7.95 and 10.08 respectively. A most important projected improvement is the St. Lawrence Ship Channel, which is planned to provide a route with a sufficient minimum depth for ocean-going vessels to sail through the St. Lawrence River and the Great Lakes, and to permit

IRON-ORE SHIPPING ROUTES

The iron ore from the Lake Superior mines is shipped by boat to Chicago, Buffalo, and the ports on southern Lake Erie, where much of it is smelted. A large part is shipped further by rail to the manufacturing cities of western Pennsylvania and eastern Ohio, where coal is abundant.

ships to load at Duluth or Chicago with grain or other products for transportation to Liverpool or Hamburg or other foreign ports without breaking cargo.

386. Roads. — The early development in the United States was halted by the building of canals and of railroads. Over the wide areas of this country the quicker routes were pre-



"Trade Routes by PANAMA CANAL and Otherwise"

APPROXIMATE SCALE

0 500 1500 2500 Miles

ferred, and labor and capital was devoted to the construction of these rather than to road-building. For three-quarters of a century road work lagged behind other lines of development. In 1890, however, there was launched at Chicago a "good roads" movement, which initiated a new phase of activity. For some years the movement was educational in its nature, but with the coming of the automobile increasing attention began to be paid to this problem. Within the last decade especially great progress has been made in the building of improved hard roads. According to the Census Bureau the direct expenditures of state governments for highway construction and maintenance in 1913 amounted to $37,000,000, and that of the county and township governments to $137,000,000. Since that time a great impetus has been given to the movement by the policy adopted in 1916, of matching the money spent for this purpose by any state with an equal sum out of the Federal Treasury. Between July 1, 1916, and January 1, 1922, a total of 28,135 miles of road has been built or is under construction under this plan. Federal appropriations for internal improvements were declared unconstitutional by Andrew Jackson when he vetoed the Maysville Road bill, appropriating Federal money for a road in Kentucky, but today, in the face of an urgent demand for good roads, the Constitution is found flexible enough to permit such appropriations.

387. Means of communication. — New and rapid means of communication are vital factors in our modern industrial society. Large enterprises can be managed from a central office which can keep in instant touch with every subordinate part. Producers, manufacturers, and merchants may be constantly informed as to trade conditions, price changes, and other factors which might affect their actions. Thus a draught in India, too heavy rains in Argentina, a bumper crop in Canada, would all be telegraphed at once to Chicago or Liverpool and be reflected in the price of wheat on those markets. Competition is made world-wide and local price differences

tend to be eliminated. The weather bureau has rendered signal service to farmers and shipping interests by notifying them of anticipated changes in the weather. The modern newspaper, with its daily grist of news from all over the world, owes its growth to rapid means of communication.

The importance of the telegraph is only faintly reflected in the number of messages sent, but this has grown astonishingly, from about 100,000,000 annually at the beginning of the twentieth century to over 150,000,000 today. Owing to its greater convenience the telephone is still more generally used; from less than 2,000,000 subscribers in 1900 the number of telephones has increased to over 20,000,000 in 1920. At the latter date about 85,000,000 messages were being sent daily.

Improvements in the postal service have resulted in a much greater use of its facilities. The number of postage stamps issued quadrupled in this period, and the postal revenues trebled. The parcels post system was introduced in 1912 and has rapidly expanded; the total number of pieces of parcel post mail handled during 1920 is estimated to have exceeded 2,250,000,000. This service has seriously cut into the business of the express companies and even into the freight business of the railroads. Indeed, the express companies are gradually being rendered unnecessary, as the field which they formerly occupied is being encroached upon by the post office on the one side and the fast freight service of the railroads on the other. Other improvements in the postal service include the use of motor vehicle service in the larger cities, instituted in 1914, and the air mail service, inaugurated in 1918. All of these improvements in the means of transportation and communication have aided in the production and distribution of books and newspapers; in 1921 there were 22,373 newspapers in the country, of which 2,500 were daily.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXVIII

By 1900 the country was fairly well supplied with railroad facilities. The urgent problem was no longer how to get needed transportation, but rather the proper relation between the railroads and the people on the one hand, and between the railroads and the state on the other. The questions of rates and regulation have accordingly been the ones most to the front, except during the War when that of physical facilities was again a pressing problem.

1. What are the main differences between the American and the English or European railways? Which do you think are better? [E. E. Pratt, Amer. Railways, 64, 269; E. R. Johnson, 347; A. T. Hadley, chap. 12.]

2. Do any cities in the United States owe their importance to railroads?

3. What would happen if all the railroads in this country were suddenly destroyed?

4. How does our internal commerce compare with our foreign?

5. Has the opening of the Panama Canal had any effect on existing routes of commerce? On railroad rates? Was its construction opposed by any interests? [S. Trotter, Geog. of Com., 377; C. C. Adams, Com'l Geog., 44.]

6. Compare the shipping through the "Soo" and the Suez canals; which is the larger and why?

7. Do you think the canals in the United States should be improved and enlarged? [E. R. Johnson, Inland Waterways; E. R. Johnson, Ocean and Inland Water Transp., chaps. 24, 25; H. G. Moulton, Waterways versus Railways.]

8. Discuss the importance of good wagon roads and the recent good roads movement. [J. W. Jenks, Road Legislation for the American State, in Publ. Amer. Econ. Ass., vol. 4, no. 3; N. S. Shaler, Amer. Highways, chap. 13; Trotter, 139.]

9. What has made Chicago the largest railroad center in the world? [W. F. Rocheleau, Geog. of Com. and Ind., 221–9; S. Trotter, 53–4, 114–5, 143; C. C. Adams, Com. Geog., 152–153.]

10. Why are the following cities important — Duluth, Buffalo, Pittsburgh, Galveston? [Rocheleau, chaps. 18, 19; Adams, Com. Geog., 95, 152–153, 155–157; Trotter (Index).]

11. What improvements, if any, could be made in the postal service? [J. P. Cushing, The Story of Our P. O.; J. W. Hyde, A Hundred Years by Post; J. L. Cowles, a General Freight and Passenger Post; W. D. P. Bliss, Ency. Soc. Ref., art. Postal Savings Banks.]

12. Should the telegraph be owned and operated by the Federal government? [Bliss, Ency. Soc. Ref., art. Telegraph; Hubbard and Green, in No. Amer. Rev., CXXXXVII, 422–434, 521–535; Means, in No. Amer. Rev., CXXXIX, 51–66; Parsons, in Arena, Jan., 1896.]

13. Can effective competition be secured between independent railroads? [A. T. Hadley, Railroad Transp., chap. 4; W. C. Noyes, Amer. Railroad Rates, chap. 5.]

14. Is any provision made by the railroads for indemnifying employees injured in the service? [5th An. Rep. U. S. Dept. of Lab., 1889; Industr. Com. Rep., XVII, 867–890; H. C. Adams, Slaughter of Railway Employees, in Forum, XIII, 500.]

15. Do the electric interurban lines seriously compete with the steam railroads in your home? What has been the effect? [R. Morris, Trolley System in Ohio, in Atl. Mo., XCIII, 130; F. T. Carlton, The Electric Interurban Railroad, in Yale Rev., Aug., 1904, p. 179; E. L. Bogart, Social and Econ. Effects of Electric Interurban Railway, in Journ. Pol. Econ., Dec., 1906; Street and Electric Rys., 1902 (Spec. Rep. Census Office), 110, 116.]

16. Do you think that the cost of maintaining hard roads should be borne by the users or by the taxpayers in general?

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CHAPTER XXIX

COMMERCIAL EXPANSION

388. Growth of foreign trade. — With the opening of the twentieth century the foreign trade of the United States experienced a great expansion. The causes of this were varied. The Spanish War in 1898 stirred the pride and imagination of the American people and broke down provincial barriers. The great development of our internal resources and of our manufacturing industries was furnishing a surplus of products for export; and the great combinations of capital were seeking an outlet for this surplus in foreign markets. In 1900 and 1901 a veritable panic was occasioned among European manufacturers by the so-called "American invasion" of those years. The greatest growth occurred in our exports of domestic merchandise, which expanded from $845,200,000 in 1890 to $1,370,700,000 in 1900, an increase of 62 per cent. But the growth of population and of wealth caused also an increase in imports, although this was much smaller, from $789,200,000 in 1890 to $849,000,000 in 1900. The movement thus initiated continued through the next two decades. This is shown in the table on the following page for the fiscal years ending June 30.

389. Foreign commerce before the World War. — The foreign trade of the United States expanded rapidly, but steadily, during the period from 1900 to 1914, both exports and imports increasing about $1,000,000,000. The relations between the two sides of the international balance sheet remained about the same. There was an excess of exports over imports, a so-called favorable balance of trade, which amounted on the average to about $450,000,000 an-

FOREIGN TRADE OF THE UNITED STATES, 1900–1921
(IN MILLIONS OF DOLLARS)

Year ending June 30	Exports of Domestic Merchandise	Imports of Merchandise	Excess of exports over imports	Percentage which agricultural products formed of Total Exports	Percentage which manufactures formed of Total Exports
1900.....	1370.7	849.9	520.8	62	35
1905.....	1491.7	1117.5	374.2	55	41
1910.....	1744.9	1556.9	188.0	52	45
1914.....	2364.5	1893.9	470.6	48	46
1915.....	2768.5	1674.1	1094.4	54	43
1916.....	4333.4	2197.8	2135.5	36	62
1917.....	6290.0	2659.3	3630.6	32	66
1918.....	5919.7	2945.6	2974.0	39	58
1919.....	7225.0	3095.8	4129.2	55	43
1919[1]....	7920.4	3904.3	4016.1	53	45
1920[1]....	8228.7	5278.4	2950.3	47	51
1921[1]....	4485.0	2508.0	1977.0		

[1] Calendar years.

nually. As already explained,[1] the people of the United States each year had payments to make abroad for interest on borrowed capital, expenditures of American travelers, payments to foreign shipowners for carrying our freights, and similar expenses. These amounted to between $450,000,000 and $500,000,000 a year, so that the excess of our merchandise exports over imports just about met our obligations. The growth of our foreign trade was keeping pace with our expansion along other lines, and was a measure of our industrial development. Our people were drawing more largely upon other countries for foodstuffs, semi-luxuries, and a greater variety of raw materials, while the growing manufacturing industries were seeking wider markets for their products.

390. Foreign trade during the War. — One of the most striking effects of the war was the enormous expansion of the

[1] See sec. 290.

foreign trade of the United States. After the first temporary disorganization upon the outbreak of the war, orders began to pour in from Europe for foodstuffs, for raw materials of all kinds, and finally for actual munitions of war. This increased demand was not due to the superior excellence or cheapness of our goods, nor to the capture of foreign markets by well-planned selling methods. It was caused rather by the cessation of peace-time industry in Europe, which caused the allied belligerents to turn to this great neutral country for material assistance. The excess of exports over imports, which had remained fairly steady for a decade, now jumped from $470,653,000 in the year ending June 30, 1914, to $1,094,419,000 for 1915, to $2,135,500,000 in 1916, and to $3,630,600,000 in 1917. Not only was the volume greatly expanded, but the character of the trade also underwent a remarkable change. The expansion took place, as might be expected, primarily in the group of commodities which ministered directly to war needs, such as explosives, munitions of every sort, canned goods, meat and dairy products, and similar items. As during the Napoleonic wars, when the United States had supplied the wants of the belligerents, so now the industries of this country were reorganized to meet the new situation. On the other hand our imports from the belligerent countries fell off, as their energies were absorbed more and more fully by their own immediate necessities.

With the entry of the United States itself into the War, there was a slight falling off in the figures of our foreign trade, for some of the supplies which we had formerly sold to the belligerents were now shipped with the American Expeditionary Forces, and some of the ships which formerly carried goods were now used as transports. Under the control of the War Trade Board, moreover, ships as well as exported goods to the neutral countries were strictly rationed, while imports were limited by the lack of cargo space. Over 60 per cent of all the exports went to our European Allies, but comparatively little was bought from them, since they had little to spare.

391. Foreign trade since the War. — With the signing of the armistice there was a marked decline in our shipments of war supplies, but this was more than counterbalanced by the heavy exports of foodstuffs, raw materials, and manufactured goods to the former belligerents. The need of Europe for these supplies was so desperate and so urgent that they were bought in large quantities at inflated prices. At the same time our farms and industries, speeded up to war pitch, were turning out large surpluses of goods, whose shipment was made possible by the discontinuance of war time restrictions and by the release of a large amount of shipping space. The demand continued unabated throughout 1919 and part of 1920. By the middle of that year, however, there was evidenced a marked falling off in the demand for foodstuffs, as Europe began to produce her own supplies, and for consumers' goods, as the necessity for greater economy was realized. In the latter year also there was a great increase in the imports into this country, showing a gradual recuperation in the industries of the belligerent countries. It is clear that the unparalleled excess of exports over imports during the period since 1914 has been abnormal and transitory and does not mark a permanent change in our trade relations with Europe or with the rest of the world. This is made even more clear by the great fall in the value of both exports and imports in 1921. It must not be forgotten, moreover, that the values in terms of which this foreign trade is stated represent a great monetary inflation, which practically doubled prices for part of the period. Stated in terms of quantities, there was a much smaller expansion.

392. The United States a creditor nation. — One important consequence has resulted from the abnormal trade relations of this period, and that is the change in the position of the United States from a debtor to a creditor nation. From the time of the earliest colonial settlements down to the end of the nineteenth century capital had been borrowed from Europe for investment in this country. It is probable that at the out-

break of the European War in 1914 the people of the United States were indebted to the people of France to the amount of about $6,000,000,000. The excess of our merchandise exports over imports during the three years ending June 30, 1917, amounted to nearly $7,000,000,000. It is not unreasonable to conclude therefore that these enormous balances resulted in paying off our international indebtedness. After our entrance into the war the United States Government advanced to our Allies the sum of $10,000,000,000, and after the armistice large advances of private credit were extended to European purchasers. Today the people of the United States are creditors of the citizens of other nations for a sum which may be estimated in round figures at about $15,000,000,000.

The significant feature of this fact is not the size of the sum, but the changed relationship of the United States to the rest of the world which it implies. To be a creditor nation means the receipt by citizens of this country of surplus income from sources outside the country itself; it means normally larger imports than exports. The full effects of this changed relation have been delayed by the abnormal situation in Europe which compels the nations there to borrow further sums from this country instead of meeting the obligations already incurred. Sooner or later, however, we may expect that in this country, as in the case of Great Britain, France, and other creditor nations before the war, imports will exceed exports, and the balance of trade will become "unfavorable." This will undoubtedly have an influence upon our traditional attitude of hostility to imports.

393. Exports. — Down to the outbreak of the World War the characteristic phenomenon of our export trade had been the increase in the proportion of manufactures; although agriculture still furnished over half of the domestic exports its share was steadily becoming less. It seemed clear that the country had at last reached a stage in its economic development where it could compete on equal terms with the older nations of Europe. Of the six articles which supply the chief

requisites for manufacturing — coal, iron, copper, wood, cotton, and wool — the United States was the largest producer of all but the last, and was therefore admirably equipped for manufacturing a great variety of commodities. At the beginning of the twentieth century about 80 per cent. of the manufactures exported consisted of the following ten articles:

A Harvester-Thresher in Argentine

The illustration shows two McCormick-Deering harvester-threshers drawn by International Titan 10-20 tractors. The machine cuts a swath 9 feet wide, and is operated by three men, though under favorable conditions two are sufficient. As fast as the grain is cut, it is carried directly into a threshing machine, where it is threshed out and the grain delivered into sacks on the side of the machine, the straw dropping on to the field at the rear. No twine is necessary for binding. These machines are used principally in the semi-arid regions where the grain is dry enough to thresh when it is harvested.

iron and steel manufactures, copper, petroleum, wood and its manufactures, cotton manufactures, agricultural implements, chemicals, leather and its manufactures, paraffin, paper and its manufactures. While some of the articles involved very little change from the crude state, as petroleum, leather, and wood manufactures, the others represented a large labor cost, as manufactures of iron and steel (which include tools, sewing

machines, locomotives, and typewriters), and other articles requiring special skill or mechanical genius, as electrical apparatus (copper manufactures). In the exportation of manufactures of iron and steel particularly, for whose production the United States is so preëminently fitted, there was great growth.

The war demands for munitions and for supplies directed solely to the purpose of winning the war changed the character of our exports to Europe, causing the proportion of manufactures to increase greatly. After the armistice there was another shift, and the demand of war-swept Europe was now for food and clothes, and a little later for raw materials and implements with which to undertake the work of rebuilding their industrial life. The following list of the ten principal articles of export for 1920 is a very different one from that given above, and shows the changed character of the demand for American goods: raw cotton, wheat, coal and coke, automobiles and parts, tobacco, cotton cloths, wheat flour, lubricating oil, bacon, and lard.

394. Destination of exports. — Our best customer is still Europe, which bought 74 per cent. of our exports in 1900 and 50 per cent. in 1920. The comparatively narrow Atlantic Ocean, with its good harbors, has always facilitated trade between the nations situated on either side. This trade has grown steadily in volume and is losing in relative importance only because of the great development of trade with our nearer neighbors. In Europe our best customers are Great Britain (to which our exports in 1920 were valued at $1,825,000,000), France ($676,000,000), and Italy ($372,000,000). During the last ten years, however, trade with Canada ($971,000,000), South America ($624,000,000), Cuba ($515,000,000), and Mexico ($207,000,000), has been growing more rapidly than with Europe; these markets will become more and more important as closer trade relations are developed with them and improved means of transportation bring us into closer contact. The trade with Japan ($378,000,000), China ($146,000,000),

and other countries in Asia has made the most rapid development of all, the proportion going to that part of the world having increased from 4 per cent. of the total in 1900 to 10 per cent. in 1920.

Those countries which will take what we have to offer, namely agricultural and mineral products, the raw materials for manufactures, and machine-made goods, will prove our best customers. As the United States becomes more densely populated, the surplus of raw products will be less and their export will diminish. With the growth of manufacturing they will be consumed at home, and at the same time the surplus of manufactured products seeking an outlet will increase. New markets will have to be found which will absorb our manufactures and these will be and are being sought in South and Central America, in the Orient, and in our outlying possessions. But American manufacturers have also found a market in Europe itself.

395. Imports. — While the volume of our imports has shown a steady increase, corresponding with our growth in population and wealth, they have not shown the same spectacular changes which have characterized our export trade. The following ten articles, in order of their importance, made up in 1900 about 55 per cent. of our imports: sugar, hides and skins, coffee, chemicals, raw silk, cotton manufactures, rubber, vegetable fibers (flax, hemp, jute, etc.), silk and its manufactures, fruits and nuts. By 1920 chemicals had moved into the list of exports, and cotton manufactures and fruits and nuts dropped to lower places in the list. On the other hand, unmanufactured cotton and wool ranked sixth and seventh among the imports, showing the growing importance of raw materials for our manufactures. Eighth in the list came " articles, the growth, produce, and manufacture of the United States, returned," amounting to $97,000,000. This is the largest amount ever returned in the history of our foreign trade, and shows the effect of the deflation and depression of 1920 and the resulting cancellations of orders.

The imports fall roughly into three classes. One group consists of articles, chiefly foodstuffs, which the United States does not produce at all or in sufficient quantities, such as sugar, coffee, tea, cocoa, fruits and nuts, spices, diamonds, etc. For most of these we must look to tropical or sub-tropical countries that are sufficiently developed to carry on steady industry, as Cuba, China, India, and South America. Another group consists of fine manufactured goods, of a character or quality that we do not yet turn out; such are cotton, silk, and woolen goods, manufactures of fur, chinaware, etc. These are obtained almost exclusively from Europe, and particularly from Great Britain and France, and also Japan. A third and by far the most important group consists of raw or partly manufactured materials for our manufactures; these, in the order of their rank, are raw silk, hides and skins, rubber, raw cotton, raw wool, wood pulp, etc. For these articles American manufacturers levy upon the whole world. But the character of the imports into the United States serves after all to give additional proof of the development of American manufactures, almost all the increase being confined to manufacturers' materials, which make up 58 per cent. of the total, and to luxuries. We import, in other words, either the raw materials or partly manufactured goods for use in manufactures and the mechanic arts, or those things which we cannot produce at home.

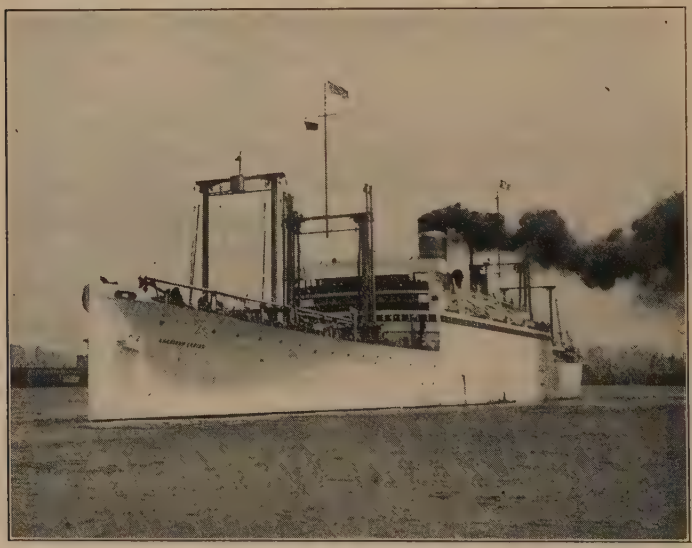
396. Assistance to foreign commerce. — Much has been done in the United States of recent years to facilitate foreign commerce. The tendency of our commercial treaties has been to grant concessions to other nations in exchange for favors to ourselves, and thus to modify the severity of our tariff barriers. The consular service has been reformed by being placed under civil service rules, and made of real service to the business men of the country instead of being used as a reward for party services. The creation of the Department of Commerce and Labor (1903) and later the establishment of a distinct Department of Commerce (1912) inaugu-

rated a new policy with respect to foreign trade. Special agents of the Bureau of Foreign and Domestic Commerce have made valuable investigations and reports upon trade conditions in foreign countries. Chambers of Commerce and Boards of Trade all over the country are making organized efforts to arouse an interest in and promote knowledge of our foreign markets; while a National Chamber of Commerce has recently been organized of one member from each leading commercial and industrial organization representing the principal lines of commerce and industry throughout the country, which coöperates with the Federal departments, and has done much to promote trade expansion. The Pan-American Union endeavors to stimulate trade with Latin America. The development of banks and the establishment of foreign connections by our leading international houses have given the benefits of distant credit facilities to exporters. Finally, the establishment of more direct steamship lines, the laying of ocean cables, and harbor improvements, are all favorable influences in the extension of American commerce. The international unification of weights and measures through the adoption by the United States of the metric system, already in general use in Europe, would be an advantage to our manufacturers.

Certain changes of recent occurrence have given the United States a more commanding position in the world's markets, especially in the Orient, which will undoubtedly further our commercial position. These are the acquisition of the Philippines as a trading base, the completion of the Trans-Siberian railroad, the industrial awakening of Japan and China, the building of the Panama Canal by the United States, and the more energetic efforts to obtain foreign markets for the growing surplus of American manufacturers. On the other hand, with all our natural advantages, we are handicapped in our competition with European rivals by our failure to adapt ourselves to the prejudices of foreign customers, by our backwardness in commercial and technical education, and by our restrictive tariff policy. An important suggested reform is

the establishment of free ports or free zones in our ports where a larger transshipment or re-export trade could be built up than is now possible under our restrictive customs regulations.

397. The merchant marine. — There had been a gradual decline in the number of American vessels engaged in foreign trade ever since the Civil War, until in 1898 the tonnage of



THE AMERICAN LEGION

This vessel was built for the United States Shipping Board and is a typical specimen of America's new merchant marine. It is a combination freight and passenger boat, and is 535 feet long. With great depth of hold for freight and ample carrying capacity for passengers, this type of steamship expresses the modern economic demands in combined trans-Atlantic passenger and freight service.

vessels thus engaged was only 726,213, the lowest figure since 1840. The lowest point in the carriage of American trade in American ships was reached in 1900, when only 8.2 per cent. of our foreign trade was carried in American bottoms. This situation had not been felt as a serious handicap so long as

our energies and capital were devoted to the internal development of the country, but when after 1900 our export trade began to take on larger dimensions certain disadvantages showed themselves. In many cases direct service between American ports and foreign markets, especially in South America and the Far East, did not exist, and it was necessary to ship goods via German or British ports. American exporters were thus placed at a disadvantage in their competition with exporters of those nations upon whose ships we depended.

In the period between 1900 and 1914 a slight gain was made, and in the latter year the tonnage of ships under American registry engaged in the foreign trade was 1,076,152. Some efforts had been made by Congress to encourage shipping, such as the proposals to pass subsidy laws and the granting in the tariff law of 1913 of a discount of 5 per cent. of duties on goods imported in American vessels. The subsidy bills were not passed, however, and the 5 per cent. discrimination was disallowed by the Supreme Court. In 1912 foreign built vessels under five years of age were admitted to American registry and permitted to sail under the American flag; at the same time materials used in the construction and equipment of ships were admitted free of duty. In spite of this permission few foreign built ships sought American registry during the next two years.

398. Effect of the war on American shipping. — The World War created new conditions and new opportunities. Within two weeks after its outbreak Congress eliminated the five-year age limit on vessels seeking American registry, permitted such vessels to retain their foreign officers, and in other ways modified the former exclusive policy. Under these liberal provisions about one hundred and seventy-five vessels sought the protection of the neutral American flag, bringing the tonnage under American registry up to 1,871,543 in 1915 and 2,191,715 in 1916. The disappearance of the German merchant marine from the seas, the diversion of British

and French vessels into war service, and the sinking of many of these by German submarines, all greatly reduced the number of foreign vessels available for our commerce. What was needed was an increase in ships and the construction of new tonnage.

The Shipping Act of September 7, 1916, created the Shipping Board, which was given important regulatory powers over shipping engaged in the foreign and domestic trade; was authorized to acquire merchant vessels by construction, lease or purchase, and to sell or charter them to citizens of the United States; and finally was authorized to create further corporations to construct and operate vessels. Under this last clause there was organized on April 16, 1917, the Emergency Fleet Corporation, which was given further wide powers. An ambitious program, calling for the delivery of 3,256 ships of 18,249,520 dead weight tons, was laid down, and after a time-wasting debate over the respective merits of steel, wood, and concrete ships, construction was finally begun in earnest.

The race between the submarines and the ship-builders continued through 1917 and the greater part of 1918, ending with the armistice of November 11, 1918. The construction of vessels for the Emergency Fleet Corporation continued, however, until some 1500 vessels had been launched. By June 30, 1920, the total sea-going merchant marine of the United States consisted of 4,889 vessels of 13,789,874 gross tons; included in this number were some of the former German ships, which were turned over to this government after the War. The United States was now second only to Great Britain as a shipping nation. The proportion of American exports carried in American vessels had risen by 1920 to 45.14 per cent.

By the Merchant Marine Act of 1920, provision was made for the sale or lease of the vessels controlled by the Shipping Board to private shippers. Various features are designed to encourage the development of an American merchant marine,

such as the extension of the coastwise laws to insular possessions and out-lying territories of the United States. This will prevent Canadian vessels from plying between Alaska and the United States, or Japanese vessels between Hawaii or the Philippines and this country. One section directs the President to abrogate all treaties whose provisions would prevent the United States from imposing discriminating tonnage and tariff duties. Both Presidents Wilson and Harding have refused to carry out this provision. To do so would undoubtedly embroil us with leading maritime nations.

399. The domestic commerce of the United States. — Vast and important as our foreign commerce has become in recent years, it is far exceeded in value and volume by our internal trade. The value of our domestic trade was estimated at about $28,000,000,000 in 1907, which was practically equal to the total foreign trade of the world in that year. The value of the domestic trade of the United States is about ten times that of the foreign trade. As the average of the latter for the years 1917–1921 was $10,000,000,000, the domestic may be given as $100,000,000,000. It is not possible to state accurately the volume of our internal trade, but it has been estimated that in quantity it is about twenty-four times that of our foreign trade. The importance of domestic commercial movements may be illustrated by a few facts: in 1919 the receipts of live stock at seven western points were 52,000,000 head; the receipts of grain and flour at seventeeen interior centers were 1,250,000,000 bushels; about 2,500,000 freight cars were used for the transportation of commodities; the domestic lake trade amounted to some 500,000,000 tons; bank clearings in the Federal reserve clearing system were over 100 billion dollars. However we look at it, the volume of our domestic commerce is evidently very great, and much more important than our foreign trade, although the latter attracts greater attention.

400. The mechanism of domestic commerce. — Interesting changes are taking place in the methods by which goods are

distributed from the original producer to the final consumer. The keen competition between large-scale producers, the huge profits to be obtained if goods could be sold directly to the final consumer, and the growth of advertising, as well as other factors, have given impetus to a movement to bring the consumer and ultimate producer closer together and to eliminate the middle-man. Municipal markets, co-operative enterprises, direct sales by manufacturers to consumers are all being tried. The development in turn of the department store, the mail order store, and the chain store are evidences of a tendency to concentration and of an effort to obtain the economies of large-scale methods and unified control. The department store carries a much larger assortment of goods than even several small ones could; it saves the purchaser much time and expense, by bringing a wide variety together in one spot, and usually is able to sell at lower prices. It is the product of rapid transit, of the enormous local demand of the modern city, and of other similar factors.

The development of the mail-order business is of the same character, and would take on even larger dimensions if it were not checked by the high cost of freight, express, and postal charges on merchandise. The mail-order house sells directly to the consumer by means of catalogues, and has many advantages even over the department store, such as a wider market, cheaper methods of distribution, and ability to reach purchasers in rural districts. Chain stores represent the latest form of economical distribution. The five-and-ten-cent stores are the most familiar examples of this type, but candy, drugs, groceries, and tobacco are also retailed in chain stores, some of which stretch across the continent. In every direction efforts are being made to eliminate unnecessary costs and to bring producer and consumer nearer together.

401. Routes of trade. — The growth of our internal commerce has led to increasingly insistent demands for the improvement and greater utilization of our inland waterways, but so far the movement of domestic commerce has been

directed to the railroads in ever-growing volume. Chicago is probably the greatest distributing point of our internal as New York City is of our foreign trade. While New York easily retains her commercial supremacy as a trading-port, there was a change in the proportion of exports shipped from Atlantic ports, from 78 per cent. in 1880 to 68 per cent. in 1900, and to 64 per cent. in 1920. Most of this loss went to the Gulf ports, whose exports grew during the same period from 14 to 22 to 25 per cent. of the whole; the ports on the Pacific Coast also showed a considerable gain. The expansion of our foreign trade has been accompanied by a shifting in the center of the export movement, due to the growing disposition of commerce to seek its destination by the shortest routes. The shipment of cotton direct to Europe from New Orleans or Galveston means a large saving in freight. The increase in the trade of the Pacific ports is attributable to the growth of our trade with South America and the Far East. On the other hand, most of the imports continue to find admission to the country through the eastern seaports.

With the completion of the Panama Canal, which was first opened to commerce on August 15, 1914, there has already begun a shifting of the routes of trade. Freights to and from the Pacific coast have been cheapened and industry in that section will consequently be stimulated. The west coast of South America — Peru and Chili — is brought immeasurably nearer the United States, and an advantage is given our merchants over their European competitors in trade with them, and also with China and Japan, and possibly with India and Australia. We may expect to see a considerable expansion of trade in those sections which can profit from the new opportunities.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXIX

In no phase of our economic life have the changes been so great or so momentous as in our foreign trade, and new problems in this field are constantly arising. Is our present large excess of exports over

imports a temporary or a permanent phenomenon? Is our position as a creditor nation likely to lead to larger imports, and possibly to reverse our balance of trade? Will this reduce the volume of our exports? In view of cheaper labor costs abroad, will it be possible to operate our newly acquired merchant marine in competition with foreign nations? These and many similar questions will call for solution as time goes on.

1. How much do the various items which do not appear in the merchandise exports or imports amount to yearly? What is the probable *real* balance in our favor? [E. L. Bogart, War Costs and their Financing, chap. 1; C. J. Bullock, Intro. to Econ., 332; C. Gide, Princ. of Pol. Econ., 294–7; C. F. Bastable, Theory of International Trade, 73–78; Bacon in Yale Rev., Nov., 1900.]

2. The imports of Great Britain and of France were each year much greater than their exports; were they running into debt? [Gide, 292–8.]

3. With what countries is our foreign trade the largest? How do you account for this?

4. Describe the method of settling international trade balances. [J. A. Hobson, Internat. Trade, chap. 8; C. J. Bullock, Intro., 331–336; C. Gide, 298–301; H. R. Seager, Intro. to Econ., 360 ff.]

5. Is it true that "trade follows the flag"? [P. S. Reinsch, Colonial Government, 62.]

6. What is meant by a "favorable balance of trade"? [W. D. P. Bliss, Encycl. of Soc. Ref., art. "Balance of Trade"; Bullock, Intro., 324.]

7. Should subsidies be granted by the government to build up the American merchant marine? [W. L. Marvin, Amer. Merch. Mar., chap. 18; F. L. McVey, Frye Subsidy Bill, in Yale Rev., II, 38; R. Meeker, Ship Subsidies.]

8. Foreign-built vessels could not be admitted to American registry before 1912; do you think the present policy of "free ships" is better? [D. A. Wells, Our Merch. Mar., 209; J. Kelley, Question of Ships, chap. 5; W. Bates, Amer. Mar., 52–54, 375–378.]

9. What bearing does our consular service have on our foreign trade? Are our consular reports of service to American manufacturers? [C. D. Warner, Our Foreign Trade and Our Consular Service, in No. Amer. Rev., CLXII, 274.]

10. Would the people of the United States suffer if they severed all connection with the rest of the world? How would the people of European countries fare if they did the same? [C. F. Bastable, Theory of Intern. Trade, 17–21; Gide, 301–6.]

11. How does the trade of South America with the United States compare with their trade with Europe? Account for this.

12. Is there any connection between the amount of our foreign trade and the maintenance of a protective tariff? What effect, if any, would its removal have on our foreign trade? [D. A. Wells, Our Merch. Mar., chap. 10.]

13. Account for the relative growth in the foreign trade of the Gulf ports, and the decline of that of New York City? [World's Work, VIII, 4732 (May, 1904).]

14. What was the cause of the sudden increase in exports in 1901? [W. R. Lawson, Amer. Ind. Probl., chaps. 21, 22; Twelfth Census, VII, clxiv–clxx; Pop. Sci. Mo., LV, 62.]

15. Describe the "American invasion" of Europe in 1901. [F. A. Vanderlip in Scribner's Magazine, XXXI, 3, 194, 287; W. T. Stead, The Americanization of the World, 342–81; Century Mag., XXIX, 786; XXXVIII, 422; LI, 786; LXI, 422; Munsey's Mag., XII, 538.]

16. "The sugar situation in Cuba led to the revolution which brought about our recent Spanish war, and thus indirectly the expansion of the American republic into imperialism." (E. R. A. Seligman, Princ. of Econ., 40.) Comment on this.

17. Ascertain to how many foreign countries the products of some local factory are sent; to how many States in the United States.

18. Is there a waste of labor involved in the constant exchange and transportation of products throughout the country?

19. How many countries are represented by the articles on your dinner table?

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CHAPTER XXX

PRIVATE AND PUBLIC FINANCE

402. Prosperity and rising prices. — One of the most striking phenomena of our modern industrial system has been the periodic recurrence of convulsions of business known as crises. They are essentially a product of capitalistic methods of production and of the credit system, and have been especially frequent since the beginning of the nineteenth century, recurring at fairly regular intervals of about ten years. It is noteworthy that crises usually occur after a period of business prosperity, when prices are high, credit is easy, and employment general, and are followed by a time of depression, unemployment, and low prices. The panic of 1893 was followed by a long period of depression, but about 1898 an era of prosperity set in. There was a series of good harvests, an expansion of manufactures, steady employment at good wages, a growth in immigration, and an increase in the supply of money, and rising prices. Between 1893 and 1907 the per capita circulation of money was increased from $23.85 to $33.86, while the general level of prices rose over 16 per cent.

403. The panic of 1907. — As is usual in such circumstances, the rise in prices induced speculative investment and over-expansion. The almost continuous increase for ten years in the prices of goods and securities, interrupted only briefly by the temporary stress of 1903, stimulated production for a further rise; and this was further promoted by the formation of industrial combinations and the payment of huge sums in profits and dividends. Again the business world lost its customary caution and plunged into reckless excesses. By

1906, however, the first signs of approaching disaster were visible. The San Francisco earthquake destroyed an immense amount of capital, a loss which was widely distributed through insurance. Increasing difficulty was experienced in marketing securities even of the very highest class, showing that the demand for capital was outstripping current savings. When the banks began to contract their loans in March, 1907, there resulted the so-called "rich men's panic," caused by the necessity these were under of sacrificing high-class collateral in order to meet their obligations. Severe declines took place in all the leading stocks. In October several banks and trust companies, whose management was identified with speculative interests, fell under suspicion. Runs began upon three of the trust companies in New York, to which tardy assistance was granted by other banks. Distrust spread from New York to the rest of the country; other banks called for the shipment of currency and frightened depositors demanded their money. The banks all over the United States partially suspended specie payments. As is inevitable in a country where three quarters of the business is done on a credit basis, there is never enough money to go around when everybody demands cash. As in 1873 and 1893 there was a premium on currency, which ran as high as four per cent. and lasted two months. Various substitutes were used during this period, but the lack of any legitimate banking methods by which additional currency might be quickly put into circulation forced upon public attention the inelasticity of our banking system.

404. The Federal Reserve system. — There had long existed dissatisfaction with the national banking system, which had been established during the Civil War, but which no longer met the expanding needs of business. Beginning in the nineties, criticism of this system had been growing, and finally culminated in the appointment in 1908 of the National Monetary Commission, to investigate banking and currency systems throughout the world and to propose a plan for legislation. After five years of discussion of the general problem

the Federal Reserve Act was passed on December 23, 1913. It took some time to organize the new system, but on November 16, 1914, the present Federal Reserve System went into effect. It must be regarded as little short of providential that it was put into operation so soon after the beginning of the World War, for without its aid the enormous governmental loans and other features of war finance could not have been carried through so successfully. It has met the two main evils of the National banking system — inelasticity and lack of co-operation — and has given the United States what has been called the best banking system in the world.

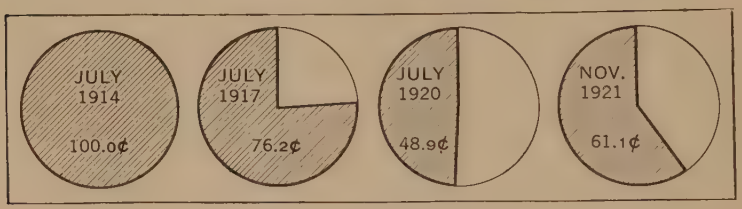
405. A unified system. — Centralization of the banking system is obtained by the creation of a Federal Reserve Board, which is charged with the general administration, and has its offices at Washington. The country is divided into twelve districts, within each of which a regional Federal Reserve Bank is established at some principal city. All national banks were compelled to become members and state banks urged to join the system. Each regional bank is the central bank of the district and in it the member banks of that district are required to keep their reserves. The regional banks carry on only certain limited kinds of business with the general public, acting rather as the banks of the member banks, rediscounting their notes and commercial paper, and performing other services. By this means there is achieved a high degree of centralization of reserves, and the possibility is given of a better coöperation among member banks within a district. This also obtains among the regional banks themselves, so that the resources of the whole country may be mobilized in the most effective fashion.

406. An elastic currency. — Elasticity of the currency is also provided for. It is assumed that the demand for money keeps pace with the expansion of business; when business is growing more money is needed, and when depression comes the supply of money should contract. The regional Federal Reserve banks accordingly issue notes to the member banks

in a district by rediscounting the commercial paper upon which they have themselves made loans to merchants, manufacturers, and others. Such Federal Reserve notes are issued in response to business needs and are further protected by a 40 per cent. gold reserve. Further issues are permitted in excess of this reserve in times of emergency, but they are penalized by a graduated tax which ensures their prompt retirement when the need is over.

407. The Federal reserve banks and the war. — There was a two-fold demand upon the banks during the war: they were called upon to grant accommodation to private business to enable it to meet the new demands upon it, and also to act as fiscal agents of the Government and assist in the flotation of the Liberty loans. They performed both these tasks with marked success, but the enormous expansion of their operations had some unfortunate results. Of these the most striking and far-reaching in its effects was the inflation both of note-issues and of deposits. Between March 30, 1917, a week before the entrance of the United States into the war, and December 27, 1918, the increase in Federal reserve notes was $2,328,000,000, and in deposits, $1,017,000,000. Still greater expansion occurred in the deposits of the member banks. Gold was held in the reserves of the banks and did not enter into circulation, but considerable silver was actually withdrawn from use. The net result was an inflation of the currency and resulting high prices, such as occurred after the War of 1812 and the Civil War. By July 1, 1921, the per capita circulation of money in the United States had increased to $53.42. Other causes were also responsible in part for high prices, such as abnormal war demands for certain commodities and scarcity due to the withdrawal of labor and diversion of capital from normal production, but the chief blame must be laid upon currency inflation. This seems to be an almost inevitable result of war, though in the case of the World War the worst excesses occurred in the year and a half following the armistice.

408. The crisis of 1920. — As a result of the inflation, high prices, over-expansion, and speculation which occurred during 1919 there occurred the following year a reaction which was followed by a long period of depression and falling prices. The crisis of 1920 differed, however, from those that had occurred in the United States throughout the previous century in that there was no sudden convulsion, no panic followed by widespread bankruptcies and business failures. The bubble of high prices and speculation had become inflated to dangerous proportions, but instead of bursting, it was gradually deflated. Speculation was discouraged by increasing the dis-



PURCHASING VALUE OF THE DOLLAR

count rates of the Federal Reserve banks, inflated prices were brought down by a " buyers' strike " at home and by a decline in the demand from abroad, and deflation of the currency was enjoined upon the banks of the country as a necessary step. The result was that the readjustment to more normal conditions was made with probably a minimum of suffering. The commercial failures in 1920 amounted to less than one-half of one per cent. of all firms. Credit for this must be given to the Federal Reserve system. While it is too much to assume that any improved mechanism of credit alone will entirely prevent alternations of prosperity and depressions, yet it may be hoped that the excesses of previous panics will not be repeated.

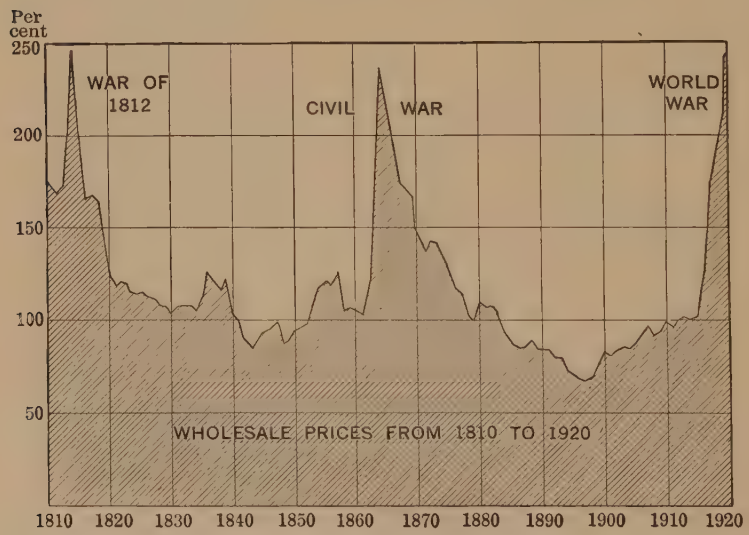
409. Savings institutions. — There has been a considerable development within the past twenty years of savings institutions. In 1901 there were in the United States 1007 savings

banks with 6,000,000 depositors and $2,500,000,000 deposits. Twenty years later there were 1707 banks with over 11,000,000 depositors and $6,500,000,000 deposits. During this period many of the national banks and trust companies had opened savings departments, and on January 3, 1911, the post-office department opened the first postal savings bank in the United States. By the end of the first year the deposits amounted to $15,000,000, and by June 30, 1920, had swelled to $157,276,322. The size of the average individual deposit — $309 as against $572 in the ordinary savings bank — shows that they are being used by small depositors who would probably not avail themselves of existing institutions. The building and loan associations constitute another valuable institution for accumulating the savings of the small savers and making them available for economic uses. On January 1, 1920, there were 7788 such associations in the United States, with 4,289,326 members and assets of $2,126,620,390.

410. War expenditures. — Little attention has been given in previous chapters to government finance, but the financial transactions during the World War were on such a gigantic scale and have since affected the fortunes of every individual so profoundly that it is desirable to describe them briefly. Although the United States was the last of the major belligerents to enter the war, the expenditures by the Government at once rivalled and soon surpassed in magnitude those of the other countries. The expenditures of the Federal government, excluding postal expenditures, for the fiscal year ending June 30, 1916, were $724,502,998, and had been at this level for some years; in 1917 they were $1,147,898,991; in 1918, the first full year of the war, they jumped to $8,966,532,266; and in 1919 reached the enormous sum of $15,365,297,396. The total expenditures attributable to the war, including the advances of about $10,000,000,000 made by the United States to our Allies, may be given in round numbers as about $32,000,000,000. This is three times as much as the total expenditures of the Federal Government during the first one

hundred years of our national existence, including those for the War of 1812, the Mexican War, and the Civil War.

The expenditure of this money meant the diversion of labor and capital from peace time occupations to the production of munitions and supplies, the payment and equipment of soldiers, and other similar items. Since it was impossible to do all these things and at the same time carry on "business as usual," many of the non-military lines of production suf-



fered. As the war proceeded it became clear that all the human and national resources of the nation must be mobilized for the single purpose of winning the war. Systems of priority were established by the Federal government, according to which materials, fuel, labor and transportation facilities, and even credit were assigned first to the war industries and last to those producing luxuries. Not only this, but appeals were made to the people to reduce their consumption of certain important articles, like wheat, sugar, chocolate, etc.,

and also to exercise thrift in their general expenditures. These methods were successful in saving large amounts of needed food for our Allies, and in diverting large savings of money into the purchase of Liberty bonds, the proceeds from which could then be used to prosecute the war.

411. War taxes. — To obtain these enormous sums it was necessary to resort to taxation and to borrowing on an unprecedented scale. In 1913 an amendment to the Constitution had permitted the imposition of a Federal income tax, and Congress had provided for one in the revenue act of October 3, 1913. This, together with the excess profits tax on business, formed the backbone of the revenue system during the war; and was supplemented by an inheritance tax and internal revenue duties which were expanded until they touched practically all luxuries and many necessaries of life. The progressive principle of taxation was applied, by which the larger incomes or profits were taxed at a higher rate than the smaller ones. Thus the highest rate in the income tax was 67 per cent and in the excess profits tax was 65 per cent; that is the Government took two-thirds of the income and left only one-third to the owner. These high rates were reduced by the acts of February 24, 1919, and November 23, 1921; but the war has left as a legacy to the American people a heavy burden of taxation which may endure for a generation. The revenues raised by taxation during the War were as follows: for fiscal years ending June 30, 1914, $735,000,000; 1915, $698,000,000; 1916, $779,000,000; 1917, $1,118,000,000; 1918, $4,174,000,000; 1919, $4,648,000,000. The difference between these sums and the expenditures was raised by loans.

412. The war debt. — Before the World War the national debt of the United States amounted to only $1,000,000,000 or about $10 per capita. By August 31, 1919, when it reached the peak, it stood at $26,596,701,648, but has been reduced somewhat since that date. It is not possible to describe the methods of financing the war at this point, but the more im-

portant facts may be stated.[1] Five bond issues were made by the government, the first four of which were called Liberty loans, and the fifth, which was floated after the armistice was signed, the Victory Liberty loan. The amounts obtained by the Treasury through the successive issues were as follows: First Liberty loan, $2,000,000,000; Second, $3,808,758,650; Third, $4,176,516,850; Fourth, $6,993,000,000; Fifth, $4,500,000,000. These enormous sums were obtained from practically every class in the country, the number of individual subscribers running up to 21,000,000 persons in the fourth loan. In addition to the bonds, whose lowest denomination was $50, war savings certificates for $5 and thrift stamps for 25 cents were also sold. In the "drives" for the sale of bonds and certificates valuable lessons of personal thrift and economy were instilled, which it is believed will permanently influence and correct our national tendency toward extravagance and waste.

[1] For a full description the reader is referred to the author's "War Costs and their Financing." (New York, 1921.)

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXX

The greatest problem in the domain of private finance is undoubtedly how to avoid panics and crises, and as an effective method of control of business a good banking system has been given increasing attention. In spite of great advance through the establishment of the Federal Reserve System, further problems remain to be solved. In the field of public finance the paramount problem during the war was how to raise by taxes and loans the vast sums needed by the government; today the problem is how best to raise by taxation the money needed to run the government and to pay off the debt.

1. Account for the rise of prices, 1900–1914. [J. L. Laughlin, Money and Prices; A. D. Noyes, Forty Years of American Finance.]
2. Why did prices rise so much higher in the period 1914–1921 than in the preceding fourteen years? [E. L. Bogart, War Costs and their Financing; J. L. Laughlin, Money and Prices.]
3. What is meant by the statement that under the national banking system the currency lacked elasticity? [O. M. W. Sprague, Defects in the National Banking System; H. White, Money and Banking.]

4. In what ways, if at all, has the Federal Reserve system provided for greater elasticity? [E. W. Kemmerer, The A B C of the Federal Reserve System; J. T. Holdsworth, Money and Banking.]

5. During the discussion preceding the establishment of the Federal Reserve System, several other proposals for the reorganization of our banking system were made. What were these? [Report of the National Monetary Commission; J. L. Laughlin (Ed.), Banking Reform; H. White, Money and Banking.]

6. Compare the panic of 1907 with the crisis of 1920.

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CHAPTER XXXI

AGRICULTURE AS A BUSINESS

413. Position and growth of agriculture. — Down to 1880 agriculture was the principal source of wealth in the United States, but each succeeding census report has shown larger values of manufactured articles than of agricultural products. The proportion of the population engaged in agriculture has also steadily declined, until to-day it is less than one-third of the total. It must not, however, be inferred from these facts that agriculture is a declining industry. The farm area under cultivation has steadily increased while improved methods of cultivation and of transportation have so greatly augmented the yield that a large surplus of agricultural products over the needs of the people is annually set free for export. Agriculture still gives employment to a larger proportion of the population than any other branch of industry, and is progressing only less rapidly than the manufacturing and transportation industries.

The relative slowing up of agricultural expansion as compared with manufactures is due to the taking up of practically all the cultivable land in the United States. Further development in agriculture will take place in the improvement of existing farms rather than in the exploitation of additional new land. In this respect agriculture differs from manufacturing, where new processes and inventions are opening up ever-broadening fields of enterprise. This fact is illustrated by the slow growth in the number of farms during the last twenty years; in 1900 there were 5,737,372, by 1910 some 6,361,502, and in 1920 only 6,449,998; there was an actual decline in the number of farms in exactly half of the states

during the period 1910–1920. While the size of the average farm declined somewhat in the first decade of the twentieth century, it has increased again during the past ten years to 148.2 acres, due to the greater economy in operation of the larger farm with the aid of labor-saving machinery.

414. Farm tenancy. — The proportion of farms operated by tenants, which amounted to 35.3 per cent, in 1900, continued to increase until in 1910 they constituted 37.9 per cent. and 38.1 per cent. in 1920. During the World War there was a slackening in the rate of increase in tenant farming, due on the one hand to high prices obtained for farm products and the consequent profits accruing from operation by the owner, and on the other hand to the withdrawal of labor into industry and into the army. It is impossible to say whether the tendency to increasing tenancy has been definitely reversed or only temporarily checked. Tenancy is found in greatest degree in the rich agricultural districts where the price of land is highest and where consequently it is difficult for a young man to purchase land of his own. It is also found to have resulted in those sections where specialization in cereal production has proceeded furthest, that is where a standardized routine agriculture is practised; on the other hand, where diversified farming is carried on, ownership is more general. Owners tend to be more progressive while tenants follow the beaten track. Whether tenancy is to persist as a permanent phenomenon will probably depend upon the character of agriculture which the future may develop in the United States.

415. Farm machinery. — The distinctive feature of American agriculture during the last half century has been the growing use of farm machinery. The American farmer is known by his labor-saving machines and implements. Their wide use has been promoted by the peculiar conditions existing in this country, of cheap land and dear labor, which made it necessary to economize in the latter factor. The introduction of farm machinery has in turn changed the systems of crop

management and especially of crop rotation. Larger areas of cereal crops can now be grown because of the use of the self-binder as compared with the cradle and sickle; larger areas can also be handled in intertilled crops, and those that require much heavy labor in the harvesting. On the other

A Combined Harvester and Thresher in the State of Washington

An evolution from the sickle and the flail. On the dry Pacific slope the two processes are performed at the same time by the same piece of machinery, but in the middle States the sheaves are usually stacked until dry, when the threshing is done by steam threshers.

hand, the scarcity and high prices of farm labor have a tendency to reduce the area of crops that require much care.

Probably the most important machine which has been in-

troduced in recent years is the gasoline tractor. The importance of this machine lies not so much in its performance up to date as in the vast possibilities which it opens up for the future. The steam engine was first applied to the work of plowing and threshing, but within the past twenty years has been pretty generally supplanted by the gasoline engine. As first developed in the northwest the gasoline tractor was a large heavy-duty machine, but this was not very successful and was followed by the development of the caterpillar type of gasoline tractor, and finally by the light general-purpose tractor. The last named machine has already begun to displace horses to a noticeable extent. But the usefulness of the gasoline engine is not limited to the work of plowing, cultivating, threshing and drawing loads.

"It has been set to work turning the milk separator, the churn, the silage cutter, the washing machine, the sausage grinder and stuffer, the feed and fanning mills, and the grindstone. It pumps water for the stock, for the house water tank, and for irrigation; it saws wood, shells corn, digs post holes, and drills the well. It mows the lawn, and runs the milking machine, the vacuum cleaner, and the lathe in the work-shop. By its power the barn and orchard are sprayed with disinfectant, and the sheep are sheared. Granaries and silos may be built to any desired height and filled by means of elevators run by gasoline. Is there any limit to which this engine may not go in relieving the farmer, his wife, and their helpers from wearying muscular effort and drudgery?"[1]

416. Cereal production. — The production of cereals is the most important branch of agriculture in the United States, representing more than half the total value of the crops raised and requiring the use of nearly half of all the improved farm land. There are eight cereal crops which are grown in considerable quantities, and which are, in the order of their importance, corn, wheat, oats, barley, rye, buckwheat, rice, and

[1] A. H. Sanford, *The Story of Agriculture in the United States*, p. 259.

FORTY BINDERS AT WORK IN IOWA

On the large, level farms of the middle West the grain is usually cut by self-binding reapers. As the harvesting must be done as soon as possible after the wheat is ripe, and a reaper can harvest only about ten acres a day, each farm requires a number of these machines.

Kafir corn. In the following table will be found the statistics of the production of the first seven since 1900:

PRODUCTION OF CEREALS, 1900-1920

Kind	1900	1910	1920
Total production of corn, bushels	2,666,000,000	2,252,200,000	3,232,367,000
Total production of wheat, bushels	658,500,000	683,400,000	787,128,000
Total production of oats, bushels	943,000,000	1,007,100,000	1,526,055,000
Total production of barley, bushels	110,600,000	173,300,000	202,024,000
Total production of rye, bushels	25,500,000	29,500,000	69,318,000
Total production of buckwheat, bushels	11,000,000	14,800,000	13,789,000
Total production of rice, bushels	11,376,000	24,510,000	53,710,000
Total production of seven cereals, bushels	4,425,976,000	4,537,010,000	5,884,391,000

It will be noticed that while there have been fluctuations in the separate crops there has been no slackening in the increase of cereal production as a whole. Most of the gain has come from opening up new land in Minnesota, North and South Dakota, Nebraska, and Kansas, which contributed half of the increase in acreage during this period. Considerable additions have also been made by Texas and Oklahoma. With the practical exhaustion of unoccupied land suitable for grain raising it is evident that the future growth of cereal production will depend more upon improved methods of agriculture than upon the addition of new lands; in any case the rate of increase will probably be slower than it has been in the past.

Of the separate crops, corn is by far the most important, representing 75 per cent. of the total world production and 55 per cent. of all the cereals in the United States in 1920; the crop for that year was worth $2,181,000,000. Most of the corn (75 per cent.) is fed to stock throughout the corn-belt and comes to market in the form of beef and pork, dairy

CORN HUSKER AND SHREDDER

When dry the corn must be husked as soon as possible, that is, the covering must be stripped from the ear. The task is enormous, and numerous machines have been invented to do the work, but until recently they have not proved satisfactory, and most of the husking is still done by hand.

products, and poultry. In the production of wheat the United States also ranks first. Although worth about one half as much as the corn crop ($1,135,800,000), it attracts more general attention because of its importance as an export crop, many European nations depending upon the United States to supply their deficits. But wheat, like beef, is to a certain extent a frontier crop, since it stands transportation

well and can be grown profitably by extensive methods. The center of wheat production has moved steadily westward in the United States, and may soon pass beyond our national boundary to the new wheat lands in Canada. With the exception of oats, the value of which crop in 1920 was $720,000,000, the other cereals are of minor importance, though rice is steadily gaining in significance, owing to new methods of cultivation.

417. Cotton. — The production of cotton has steadily increased, from 4,717,000,000 pounds in 1900 to 5,325,000,000 in 1910, and to 6,849,987,500 in 1921. As an export product its importance is still more marked, making up as it does about one quarter of the total exports. Notwithstanding vigorous efforts on the part of foreign producers to make themselves economically independent of the United States in the production of cotton, this country produces over sixty per cent. of the cotton supply of the world. A needed improvement in the process of marketing cotton is now being made by the erection of more adequate warehouses for storing cotton; it is estimated that southern farmers now lose $50,000,000 a year in the deterioration of their cotton through exposure to the weather. There have been invented various labor-saving implements in the production of cotton, of which the most important are the cottonseed planter, the fertilizer distributor, the cotton-stalk cutter, and various kinds of plows and harrows. Vigorous efforts are also being made to perfect cotton-picking machinery. A definite limit is now placed upon the production of cotton by the necessity of picking it by hand; in other words, a man can cultivate more cotton than he can pick. If the pneumatic picking machine could be perfected so as to supplant hand labor in this operation it would effect a revolution in southern agriculture nearly as momentous as that which followed the introduction of the cotton-gin. The effect upon the labor now used in the cotton-fields would be no less striking.

The last quarter of a century has seen the most remarkable

growth in the cottonseed industry, and in the utilization of the stalks and roots, all of which had previously been regarded as waste products to be disposed of at considerable expense. Cottonseed oil, obtained from the seeds, is used in making salad oils, oleomargarine, lard, and soap, the meal is used as a fertilizer or fed to the stock, and the hulls and stalks are used for the same purpose or as fuel and in the manufacture of paper; in 1920 southern farmers realized $128,000,000 from the sale of cottonseed alone.

A peculiar feature of cotton production is that it is largely in the hands of tenant farmers, about two-thirds of the crop being produced by them; about half of the cotton farms are in the hands of Negroes. The farms in the hands of Negroes are generally small patches sufficient to raise a couple of bales of cotton or used for truck farming. The more recent tendency seems to be to combine small farms into a plantation and small plantations into larger plantations. Frequently these are under the control of corporations which conduct both mercantile and agricultural operations. In spite of the fact that the Negroes are in the most fertile sections, the average yield of cotton per acre for the negro owner is less than for the white owner, who is generally situated on the poorer soils. The Negro has shown the greatest efficiency in those sections where he has been brought most closely under the supervision of the whites. But the improvement of southern agriculture, diversification of crops, use of fertilizers and improved machinery are in general confined to the so-called white counties; the improvement in the means of transportation especially has stimulated this movement.

The high price of cotton during the past few years has been of great importance in lifting the cotton planter out of the slough of debt and dependence upon store credit. The crop lien has almost disappeared, deposits in the banks have increased, and the farmers have increased their purchases of farm machinery and fertilizer. A factor in the elimination of the crop lien and of store credit was the growth of small

banks with a minimum capital of $25,000, which were authorized under the national banking law in 1900; the cotton planter was financed by these banks instead of by the country storekeeper.

418. The cotton boll weevil. — Southern agriculture has been profoundly affected by the depredations of the boll weevil, and has undergone a veritable revolution in the past thirty years. The beetle migrated from Mexico into Texas in 1892, and since that time has spread over practically the entire cotton-growing area of the United States. The female weevil lays its eggs in the green bolls, on which the grubs later feed, so the bolls either fall off or fail to develop. The destructiveness of the boll weevil and the cost and difficulty of combating it have forced the southern farmer in the infested regions to give up or reduce the planting of cotton and to diversify his crops. This has been so beneficial that the effects of the boll weevil cannot be said to have been altogether bad; indeed, one county in Alabama has erected a monument to the boll weevil because it has compelled the abandonment of the one-crop system. In the ten leading cotton states the acreage planted in cotton decreased over 2,000,000 acres between 1919 and 1921, or from 38.9 per cent. of the whole to 36.1 per cent. At the same time the area planted in corn, oats, and hay increased about 4,500,000 acres. Production of food for home consumption has greatly increased in the South. The price of cotton throughout the world will undoubtedly be raised as a result of this shift in southern agriculture, but it is unlikely that the primacy of the South as the chief producer of cotton will be altered.

419. Live stock. — The raising of cattle for food purposes is the most important branch of the live-stock industry; the annual beef production of the United States to-day is about 7,000,000,000 pounds. The raising of live stock is the predominant industry in the semi-arid States of the West, as Montana, Wyoming, Colorado, and Texas. Of recent years there has been a movement of live stock from the ranges of

the far West to smaller farms (under 500 acres) in States immediately west of the Mississippi. Here they are raised in small herds, and more attention is given to breeding. With the development of stall feeding the concentrated foods, such as corn, have come to be of great importance and they are fed to the cattle where they are grown. It is not improbable, however, that the near future will see a development of the live stock industry in the East and South as a result of growing alfalfa and other special forage crops, of root crops, and of breeding varieties of corn, clover, and other crops especially adapted to those sections.

Scarcely second in importance is the production of pork and hog products, of which we contribute about one half of the world's supply. It is no mere coincidence that the twelve states of the north-central division, which grow almost three quarters of the corn, should also produce nearly two thirds of the hogs, for corn is the chief food used in fattening the animals for market. There is a strong concentration of this industry in Iowa, Illinois, Missouri, Indiana, and Nebraska. It is in these States that the great slaughter-houses and meat-packing establishments are found, notably in the cities of Chicago, Kansas City, and Omaha. Improvements in refrigeration and transportation have caused a great centralization of these industries in a few cities and permitted the growth of an immense export trade in meat products, amounting to about $175,000,000 in 1900 and $635,000,000 in 1920.

The dairy industry, which is quite distinct from the live-stock industry, is confined chiefly to the corn-belt and the eastern States. This industry has been greatly stimulated and transformed by recent developments. Chief among these should be named the rise of great markets in our large cities, for which it is necessary to furnish a regular and wholesome supply; trains carrying only milk are now run to all the principal cities, often from great distances, and methods of sterilizing, bottling and refrigerating milk have been developed. The breeding of cows for milk production has

yielded wonderful results, and the perfecting of the silo, whereby good feed is provided for the animals during the winter, has increased the winter supply of milk.

The poultry business has been almost revolutionized by the introduction of the incubator and brooder, which have greatly increased the production, and by the application of cold storage to both poultry and eggs, thereby equalizing their marketing and consumption throughout the year. New demands for eggs have also been created in certain manufacturing processes, such as photography, the manufacture of dyes, and the printing of calico.

420. The need of intensive farming. — In spite of the great increase in the products of agriculture the growth of the population proceeded so rapidly that by 1900 it had almost caught up with the capacity of the country, under existing methods, to produce the needed food supply. Thus, between 1900 and 1910, the population increased 21 per cent., but the cereal production only 1.7 per cent. Our agricultural exports declined, as we had less to spare for our neighbors in other parts of the world; the exports of wheat, corn, meat, dairy products, and other foodstuffs all fell off. On the other hand the increasing demand for agricultural produce could no longer be so easily supplied as formerly by merely extending the cultivated area westward. The practical exhaustion of the supply of arable land in our public domain closed that avenue of escape. The United States is now face to face with the problem that has confronted all European countries, of enlarging the food supply by increasing the production of lands already under cultivation.

The outbreak of the World War in 1914 abruptly changed the situation. Owing to the withdrawal in Europe of millions of men from productive industry to engage in war it became necessary for the belligerent countries to draw a larger part of their supplies from the United States. The increased demand raised prices and much marginal land, hitherto unimproved, was brought under cultivation and the output was

greatly enlarged. When normal activities were resumed after the armistice, the European peoples were able to supply most of their own needs and the inflated prices of American foodstuffs dropped sharply by the end of 1920. Production, however, has remained large, and this has forced to the front problems of farm organization and management, foremost among which is the question as to whether it is desirable to substitute intensive cultivation for extensive or exploitative farming.

The American always has been and for the most part still is a "cheap land" farmer, who has economized labor but has used land prodigally, always ready to desert old land for new. It is significant that there has been increasing resort to careful and exact farming with the cessation of free homesteading on the public domain on a large scale. The American farmer of the future will be compelled, as land increases in price, to resort to more intensive cultivation. Little, however, has as yet been done along these lines: thus if we compare the average crop yield for the period 1890–1911 with that for 1866–1889 we find that for the entire United States the yield of wheat was increased by $1\frac{1}{2}$ bushels per acre; but the average yield of corn was decreased by one-half bushel. During the next decade, 1911–1920, under the stimulus of war prices, the production of wheat was increased nearly one bushel per acre, and that of corn about $1\frac{1}{3}$ bushels per acre. That virgin soil rather than improved methods has been responsible for maintaining our wheat yield is made clear when we notice that nearly half of the wheat crop of the United States is produced in the five states of Kansas, Nebraska, Washington, and the Dakotas.

The necessity for more intensive cultivation has involved a change in agricultural practice and methods, and the transition is not easily made by those trained under easier conditions. Instead of the repeated cultivation of one staple crop, systems of cropping have been worked out; scientific rotation is used to prevent the exhaustion of the soil. Once it was

possible to point to the corn, wheat, rye, and cotton belts, where a massing of each crop took place regardless of local circumstances. But to-day these great aggregations of similar crops are being broken up, and local specialization is becoming the rule. The old practice of self-sustaining farming is also being promoted, especially in the West, as a result of the high freight rates, which make it less profitable for farmers to grow crops for distant markets or to bring in supplies from outside. As a result, they are diversifying their farming and raising more supplies for their own consumption. It is now necessary for a feeder to grow his own feed, and for the dairyman to rely less on shipped-in grain and forage. The nearness of a good market has become more important than the fertility of the soil in determining land values.

421. Irrigation and reclamation. — The exhaustion of the soil under the old single crop system and the great increase in the population have led to a demand for conservation, for reclamation, for agricultural education, and for other remedies to prevent a further rise in prices. The program of conservation involves a problem so much larger than the preservation of our agricultural resources merely, that a full discussion of this must be deferred to a separate chapter. It has been forced to the front by a recognition of the fact that a lessening of waste in the exploitation of our natural resources is necessary. Looked at from another point of view the problem presents itself as the better utilization of our resources, the intelligent development and not the destruction of our soil, our forests, and our fisheries. We shall confine ourselves here to the consideration of the first of these.

There remain of the public domain in the United States about 842,000,000 acres, practically all of which is in the arid zone. With the expansion of the population and the taking up of all the fertile public lands, the problem of reclaiming the arid plains of the western States has begun to attract attention. Nearly two fifths of the territory of the United States has an annual rainfall of less than twenty inches, and

is thereby reduced to a condition of sterility, except for grazing purposes, unless it can be artificially provided with the necessary moisture. Much of this land is exceedingly fertile, but cannot be cultivated except where it is brought under irrigation. This arid belt includes the eight States of Montana, Idaho, Wyoming, Colorado, Utah, Nevada, Arizona, and New Mexico, and parts of several other adjoining States.

IRRIGATION DITCHES

At the upper end of each ditch it is usual to construct some device by which the amount of water entering from the river can be regulated and its fair share distributed to each ditch. The effect of irrigation has been marvelous in reclaiming and developing the arid and semi-arid sections of the country.

Although irrigation had been practised in America from time immemorial by the Indians, only a few hundred acres were being irrigated when, in 1847, the Mormons began their experiments in Utah. By 1870 there may have been 20,000 acres under irrigation in the United States, but the next decade was one of rapid construction of small ditches by individuals and associations of farmers, and by 1880 the irrigated territory had grown to not less than 1,000,000 acres. "In the decade 1880 to 1890 occurred the 'boom' of speculative enterprise

in irrigation canals. Large sums of money were obtained for irrigation works by the sale of stocks and bonds, and great enterprises were projected. . . . Nearly all of these failed of financial success. . . . In 1889 there were 3,631,381 acres irrigated. . . . During the following decade the irrigated acreage doubled in extent. This has been due rather to the extension and enlargement of the many canals existing in 1889 and to the more complete practice of irrigation on the lands then under ditch than to the construction of new and large systems of irrigation."[1] In 1910 there were 13,738,485 acres under irrigation, from which were raised crops, chiefly hay and forage and vegetables, with a value of $181,617,496. By 1920 the acreage under irrigation had increased to 19,191,716 acres, which produced crops valued at $758,000,000. While most of the work done hitherto has been carried out by private initiative, a demand has recently arisen for irrigation at government expense, in response to which Congress in 1902 provided for the gradual building of irrigation works out of the proceeds of the sales of public lands. Regulation of the use of the limited water-supply, either by State or Federal authority, is essential to the success of irrigation.

Attention has recently been directed to the project of draining the vast swampy region that stretches along the Atlantic coast almost continuously from New Jersey to Florida. It is estimated that 80,000,000 acres could be drained and made available for cultivation; this would support a population of 10,000,000 people. These comprehensive irrigation and drainage schemes must be carried out by the government, and considerable has already been done along this line. The latest demand upon the Federal government has been for the establishment of a corps of trained men to visit the farmers of the country and instruct them in the principles of soil fertility, waste, and conservation. It is urged that such a service will reclaim a large part of the 900,000 square miles of depleted cultivable land in the East,

[1] Twelfth census, VI, 801.

and is of more importance than opening up small areas of new land to cultivation. This demand only emphasizes the need of increased education along agricultural lines, and to this we may turn. Here would seem to lie the ultimate solution of the problem of increased productivity.

422. Agricultural education. — An important step in the reorganization of American agriculture was the grant of Federal support to the agricultural experiment stations in 1887. There had been State stations before this, but now they were co-ordinated, their number increased, and their activities enlarged. By them science has been applied to agricultural problems, experiments carried on, and the results disseminated among the farmers. Their influence is already far-reaching, and will become increasingly important. It is estimated that the North Dakota station added to the wealth of that State ten million dollars a year for a decade by the better development of cereals. The Federal government is appropriating about one and one half millions of dollars a year for this work, and the States somewhat more. Most of these stations are situated at the agricultural colleges, which are to be found in every state and territory in the Union. The number of students in these institutions is steadily growing, and an increasing number of their graduates is going back to the farms equipped with a knowledge of scientific agriculture. This is taught as a science as well as an art, and the student is given a general education in farming methods. Agricultural education is also being carried down into the secondary schools; and with the passage in 1917 of the Smith-Hughes Act, granting Federal funds to high schools for instruction in agriculture, we may expect to see a great expansion along these lines. Lately, railroads, millers, grain dealers, and others interested in the development of agriculture have co-operated to bring the instruction of the schools and colleges as near to the farmer as possible by means of special lectures, with moving laboratories.

Another important kind of work along these lines has been

carried on by the Department of Agriculture. The bureau of plant industry has men searching for new plants in every quarter of the globe, and determining whether they are practical and desirable for introduction into the United States. During the single year 1904 nearly fifteen hundred new kinds of seeds and plants were introduced into this country, including species especially adapted to the arid regions. Other bureaus, which are performing equally valuable service, but which can only be mentioned, are those of forestry, weather, entomology, animal industry, chemistry, and the more recent bureaus of agricultural economics and markets. The results of the Department's work are brought to the farmers through the experiment stations, by its agents, and by various publications. As the application of the principles of experimental science to agriculture becomes more systematic and more general, no profession will require a more thorough scientific training than this.

An equally significant movement has taken place recently along the lines, not of governmental encouragement, but of self-help, and has led to agricultural coöperation. In manufacturing and commercial enterprises there has long been a tendency toward closer organization, but farming has been slow to avail itself of this principle. Now, however, agricultural coöperative organizations have been established for buying farm supplies, for marketing farm products, and for obtaining credit. The most noteworthy successes have been achieved in the selling of fruit, grain, milk, and some other commodities, of which the California Fruit Growers' Exchange may be cited as an example, and especially in the establishment of coöperative elevator companies, which are now to be found in the central and northwestern states. In 1919 coöperative marketing and purchases amounting to $721,983,639 were effected through farmers' organizations. By means of these organizations the farmers aim to maintain more stable prices by releasing their stocks gradually instead of flooding the markets immediately after harvest.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXXI

Although the old system of wasteful, extensive agriculture has by no means come to an end in the United States, a new era has come in this field. The growth of population has created a greater demand for food and other products, higher prices have caused a better utilization of the land, and stimulated a greater production. All this has meant better technique, more accurate knowledge, the substitution of science for rule of thumb. The problems of agriculture are problems of organization, of marketing and credit, and of education.

1. How long would it have taken to harvest the crops of 1910 with the hand implements in use 75 years before? [H. W. Quaintance, 19–28; H. N. Casson, in Rev. of Rev., XXXVII, 601; Thirteenth An. Rep. of U. S. Bur. of Lab.]

2. In his report for 1901 the Secretary of Agriculture wrote: "We import annually millions of dollars' worth of tropical products that could be grown in the United States." Should the tariff be extended so as to stimulate the growth of these products?

3. If the present increase in the consumption of bread continues, is there danger of a wheat famine in the future. [W. Crookes, The Wheat Problem, chap. 1.]

4. Why are exports of corn so small as compared with wheat?

5. Describe the ravages of the cotton boll weevil, and attempts to exterminate it. [Publ. Amer. Econ. Ass., 3d series, V, 114–117; Agric. Year-book, 1906, pp. 313–324.]

6. Why do not other countries raise their own cotton instead of importing it from the United States?

7. In 1905 some of the cotton planters agreed to burn part of their crop in order to keep the price up. Was this economically desirable?

8. Describe the production of beet sugar in the United States. Is it likely to increase? [The World's Sugar Production and Consumption 1800–1900, in Mo. Sum. of Com. and Fin., Nov., 1902; Taylor in Annals, XXII, 179; Baker in Rev. of Rev., XXIII, 324; Lighton in Cosmopol., XXXV, 181; Rutter in Quart. Journ. Econ., XVII, 44.; Taussig in Quart. Journ. Econ., Feb., 1912.]

9. Describe one of the bonanza farms of the West. [Powell in Arena, XXV, 373; Bindloss in Living Age, CCXXII, 498; Carver in World's Work, VII, 4332.]

10. What are the most important agricultural products raised near your home? Do you think more profitable ones could be introduced?

11. Is the live-stock industry carried on near cities? The dairy industry? Why? [S. Trotter, Geog. of Com., 114; C. C. Adams, Com. Geog., 77–79.]

12. Describe the methods of irrigation. [Twelfth Census (1900), VI, 801–880; E. Mead, Irrigation Institutions; F. S. Newell, Irrigation.]

13. Would it be possible to obtain a free grant of land to-day? How would you go about it?

14. Describe scientific forestry, and tell how far it has been introduced into the United States. [Reps. U. S. Dept. of Agric., especially 1860, 1865, 1870, 1875, 1886; Publ. U. S. Bur. of Forestry, Sen. Doc., 54th Cong., 1 sess., no. 84; H. C. Adams, Sci. of Fin., 242–247; B. E. Fernow, Econ. of Forestry.]

15. Describe the threatened extinction of the seal and the success of efforts to preserve them. Are any fish in American waters threatened with extinction, and why? [J. B. Henderson, Amer. Dipl. Questions, 10–15; Sprague in Overland, N. S., XLII, 435; Jordan in International, VII, 222.]

16. Are large or small farms better? [A. Marshall, Princ. of Econ., chap. 10, sects. 8, 9; chap. 11, sect. 7; A. Marshall, Econ. of Industry, 176–181; E. De Laveleye, Elements of Polit. Econ., 110; J. S. Nicholson, Princ. of Polit. Econ., I, 309; C. Gide, Polit. Econ., 154–157; J. S. Mill, Princ. of Polit. Econ., book I, chap. 9, sect. 4; H. Fawcett, Manual of Polit. Econ., 67–70; R. Mayo-Smith, Statistics and Econ., chap. 4.]

17. Are the people engaged in farming employed in more productive occupations than those engaged in transportation or domestic service? [C. J. Bullock, Intro. to the Study of Economics, 116; C. Gide, Principles of Polit. Econ. (2d ed.), 75–80.]

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CHAPTER XXXII

PHYSICAL RESOURCES AND CONSERVATION

423. Physical conditions of industrial development. — In the opening paragraph of this book the statement was made that the main conditions of the industrial growth of a country consist of the character of the people and of the natural resources. The intervening chapters have traced briefly the manner in which man has made use of the material resources at his command in the United States during the past three centuries, and some conclusions as to the extent of the progress achieved may now properly be drawn. That we have made material progress there is no question. The territory that once supported a few hundred thousand Indians is now populated by 100,000,000 people on an immensely higher plane of culture and material well-being. And the progress is still continuing, at a constantly accelerating rate of speed. The life of a generation suffices today to effect a complete industrial revolution. Indeed so rapid is the rate of change that the displacement of old machinery and methods by new inventions is accepted as a normal incident in industry, and is accounted for like other costs in production.

How may this rapid and great advance be accounted for? First of all as a factor in development must be noted the character of the people themselves.

424. The character of the people. — Combining the best characteristics of many of the best stocks of Europe, the American people have yet developed some distinctive traits. They are characterized by qualities of nervous energy, intelligence, independence in thought and method, boldness in initiative, and perseverance in enterprise. The absorption

in material pursuits and the over-emphasis of the value of material success, in part the result of inheritance and selection, has been largely developed as a result of the industrial environment. Partly as a result of these same forces and partly inherited, a peculiar aptitude in the invention and use of labor-saving machinery has been noted by all writers as a special characteristic of the American. Equally quick in devising original methods or adapting the ideas of others, he has applied machine methods to every line of production. Called into being at first by necessity, American ingenuity has been fostered and developed, and has found probably its best application in the invention of complicated machinery.

425. The land of the United States. — The second great factor in the development of the country has been its wealth of natural resources. Of these may be mentioned first the extent of territory, which amounts in Continental United States to over 3,000,000 square miles or about 1,920,000,000 acres. More important than mere size, however, is the fertility of the soil or its serviceability for man's uses. Probably one-fourth of the land area is useless for agriculture. The Cordilleran region is not only irretrievably barren itself, but, by reason of its great altitude, shuts off the moisture from the Pacific Ocean and reduces much of the land immediately to the east to a condition of sterility. On the Great Plains, where the rainfall is deficient, agriculture is impossible except where irrigation is used, or along the river bottoms. Consequently this region is given over mainly to grazing and stock raising. In the other sections of the United States, however, the fertility of the soil is remarkably great. In that section of the country where settlement occurred for almost three centuries the soil was rich and well suited to agriculture.

426. Temperature. — Next in importance to the fertility of the soil may be ranked the distribution of temperature and rainfall. Temperature has both a direct influence upon man and an indirect influence through its effect upon the plant and

PHYSICAL MAP OF THE UNITED STATES

animal life at his disposal. A cold climate seems best adapted to call forth those virtues which are helpful to economic progress. Those portions of Europe which have sent forth the most energetic people and have developed the highest civilization are situated between the lines of forty and seventy degrees average annual temperature. It is noteworthy that North America is broadest in the temperate zone and tapers down to a narrow point in the tropical zone, in which respect it is the opposite of South America or Africa. In respect of temperature the United States is the most favorably situated of any country in North America. The temperature of the United States is substantially the same as that of western Europe, the mean annual temperature being 53° F., though the extremes of heat and cold are much greater in this country than in Europe.

427. Rainfall. — Of not less importance than the temperture is the amount and distribution of moisture. An annual rainfall of at least 20 inches is essential to agriculture, districts with less than that being suited only to grazing, while a rainfall much exceeding 50 inches produces a rank growth harmful to most of the plants grown in the United States. The average annual rainfall of the United States is 29.6 inches; east of the one hundredth meridian, however, the average is much higher and gradually increases towards the east and southeast. West of the one hundredth meridian the rainfall decreases as one proceeds to the west and southwest, the temperature rising as the rainfall declines. About three quarters of the population are found in the regions enjoying an annual rainfall of between 30 and 50 inches, the conditions there being most propitious for sustaining a dense population.

428. Climate and economic development. — Several advantages result from the possession by the United States of this varied yet well-balanced climate. Owing to the wide variations in the climate and character of the land there exists an immense variety of plant life. The danger of a general failure of our staple agricultural crops is slight, for a loss in one

part of the country is almost certain to be made good in another. A certain stability is thus given to agricultural products and prices. Another advantage exists in the variety of crops which such a wide range of climate ensures. Not merely does the United States lead all other countries in the production of dairy products, corn, and wheat, but the greater part of the lumber, meats, tobacco, and cotton, which enter into the world's trade come from its forests and fields. This diversity of climate and resources has meant great diversity of occupations with attendant differences of interests, habits of living, and modes of thought. While this fact has had a certain influence in dividing the people into sections with opposing interests, on the whole it has made for broadness of view and catholicity of interests.

In its direct effect upon the race which has grown up in the new world, the environment seems to have made for a stronger and hardier people than any of those of the old world. The best available statistics on this point are probably those gathered by Dr. B. A. Gould, during the Civil War, which are based upon measurements of over 1,000,000 soldiers. The main results are briefly summarized in the following table: [1]

PHYSICAL MEASUREMENTS OF WHITE SOLDIERS (AVER. 21 YEARS)

	Height (in.)	Weight (lbs.)	CIRCUMFERENCE OF CHEST (INCHES)	
			Full Inspiration	After Inspiration
New England	67.9	139.4	36.7	34.1
Middle States (N. Y., N. J., Pa.)	67.5	140.8	37.1	34.3
Ohio and Indiana	68.4	140.8	37.5	34.9
Coast Slave States	68.2	140.9	36.6	34.2
England	66.6	137.6	36.9	34.3
France, Belgium, and Switzerland	66.5	137.8	36.8	34.3
Germany	66.7	140.3	37.1	34.7

[1] U. S. Sanitary Commission Memoirs, vol. II, pp. 104, 277, 403.

From this it will be seen that the European stock has improved during the long residence in America, and that the American of today is better developed physically than his old world cousin. "When one considers all these things," says Channing, — "the climate and rainfall of the United States, its physical configuration, its adaptability to the service of civilized man, its fertile soils and magnificent water powers, its inexhaustible mineral resources, and the effect of this environment on the physical body, — one must admit that the European race has gained by its transfer from its ancient home to the soil of the United States." And one must also appreciate, it may be added, the effect on their development of the remarkable environment and wonderful resources in the midst of which the American people have worked out and are working out their economic and social destiny.

429. Harbors and coast line. — The land, at least on the eastern half, is well indented with numerous bays and harbors, and traversed by long and navigable rivers; for purposes of internal and external commerce both these features are of inestimable advantage. The Mississippi River, with its tributaries, drains over 1,000,000 square miles of territory in the very heart of the most fertile region of the country. The Mississippi, the Missouri, and the Ohio rivers together are navigable for over 10,000 miles, while for fully half that distance they are accessible by vessels of considerable size. On the north the Great Lakes offer unrivalled facilities for water transportation, and with the "Soo," Welland, and Erie canals afford an outlet to the ocean for the agricultural and mineral products of the northwest. The tidal shore line of the mainland, including indentations, on tidal waters where such waters narrow to a width of one mile, measures about 12,000 miles, which gives about one mile of shore line for each 250 square miles of surface.

430. Water power. — It is estimated that the potential water power of the running streams in the United States represents the equivalent of 650,000,000 tons of coal burned every

year, or about 50,000,000 horse power. If a horse power be calculated as equal to ten times a man power, some idea may be gained of the vast amount of power available for human needs. With the development of electrical devices this power can be harnessed, and transported to even greater distances, where it can be used for a great variety of purposes.

431. Coal. — According to the United States Geological Survey there are 335,000 square miles of coal-bearing strata in this country, but much of it is too thin or impure to be available for industrial use. It serves, however, in many localities as domestic fuel, and few places in the United States are far removed from burnable coal. By far the greatest part of our available supply is bituminous, the area which is underlaid with anthracite being less than 500 square miles. Not merely in the extent of the area underlaid with coal are we favorably situated, but our superiority over Europe and the rest of the world is made more evident by a comparison of the thickness of the seams, the depth, the dip, and the cost of working. In all these respects we have an advantage.

432. Iron. — The United States is the largest producer of iron ore in the world, but so great is the abundance of the supplies that only the richest mines are now being worked. The conditions of iron production in the United States are set forth as follows by Professor Tarr: "An iron ore, in the present state of the iron industry, must occur in a very favorable position as regards market; it must be of good quality and considerable quantity, and favorably situated for extraction and smelting. Iron is now so cheap that, where mining operations are difficult, as, for instance, where the mine is deep, the vein narrow, gangue abundant, or transportation difficult, it cannot be mined."

433. The mining industry. — The industrial supremacy of the United States rests firmly upon the rich mineral resources of the country, which, together with agriculture, furnish the raw materials for most of the manufactures. In the produc-

tion of the three mineral products which are most essential to modern industry — coal, iron, and copper — the United States leads all other nations; it also stands first in the production of petroleum, silver, lead, zinc, phosphate, and sulphur, and second in the production of gold. According to a report of the Geological Survey, "The only essential minerals of the first rank of which the United States has no known supply at all commensurate with its needs are nitrates, potash, salts, tin, nickel, and platinum, the list thus comprising two essential mineral fertilizers and three very useful metals. Probably no other nation in the world so nearly approaches absolute independence in respect to mineral resources."

In 1899, for the first time, the total value of the commercial mineral production was over $1,000,000,000; by 1910 it exceeded $2,000,000,000, and in 1920 it amounted to over $6,700,000,000. While the total value of the mineral product lags far behind the values of agriculture and of manufactures, the rate of increase has been much more rapid. Two thirds of the mineral wealth was obtained from the northern states, and especially from those sections where coal and petroleum were found. The most important mining states, in order of output in 1920, were: Pennsylvania, Illinois, West Virginia, Michigan, Ohio, and California.

The following table shows the growth of the mineral industries since 1900:

SELECTED MINERAL PRODUCTS OF THE UNITED STATES, 1900–1920

Product	1900	1910	1920
Coal, long tons	263,537,465	449,844,980	636,063,000
Iron ore, long tons	27,553,161	56,889,734	69,558,000
Copper, pounds	606,117,166	1,088,237,432	1,209,061,040
Gold, fine ounces	3,829,897	4,657,018	2,395,017
Silver, fine ounces	57,647,000	57,137,900	56,564,504
Petroleum, barrels	63,620,529	209,556,048	443,402,000
Lead, short tons	101,551	249,086	476,849
Zinc, short tons	123,886	252,479	450,045

434. Forest industries. — The timber resources of this country have been enormous, and have contributed greatly to its wealth. The total value of forest products cut or produced on the farms in 1909 was $195,306,000; on the other hand, the value of the products of the lumber industry proper was $566,832,984. The annual cut from our forests amounted in 1900 to about forty billion feet board measure; by 1920

ONE OF THE LARGEST PAPER MACHINES IN THE WORLD

The enormous rolls are of newspaper, manufactured from wood pulp. The United States uses annually nearly two million cords of wood in the manufacture of paper, an area half as large as Rhode Island being stripped of timber to supply the paper mills. Most of these mills are located near the sources of the raw materials.

it had declined to about thirty-two billion feet. At the former date the Lake States were the chief source of supply, but by 1918 they had fallen to third place, the largest producers being the southern States with 43 per cent. and the Pacific group with 27 per cent.

As the northern forests have been exhausted there has been a gradual displacement of hardwood by the conifers, especially by the yellow pine of the southern States; about half of the output consists of the various species of pine.

With the practical exhaustion of some of our most valuable forests, due to reckless and wholesale cutting, the importance of forestry regulations has become increasingly evident. In 1898 the Federal government began practical work in the introduction of forestry, which received a great stimulus in 1905, when the care of the national forest reserves, embracing 63,000,000 acres, was transferred to the Department of Agriculture and a separate bureau was organized under the name of the Forest Service. Over 150 professional trained foresters are employed who manage the forests on the public lands and coöperate with private owners to introduce scientific forest management. A beginning has been made in the introduction of scientific forestry by private owners, especially by large users of wood, such as the railroads. The rise in the price of lumber shows the necessity for a more careful conservation of our forest wealth.

435. The fisheries. — Among the natural resources may finally be mentioned the fisheries. Although the relative importance of this industry, compared with the other extractive industries, has greatly declined, the United States is outranked only by Great Britain in the annual catch of fish. In 1900 the catch was worth $40,000,000, and twenty years later about $66,000,000; this was exclusive of the Alaskan fisheries which at the latter date contributed over $40,000,000 more. The most valuable fisheries are those along the coast and in the ocean, followed at a considerable distance by the Great Lakes and the river fisheries. As in the case of the forests, much has been done by the Federal government to make good the loss occasioned by our early wastefulness. Lakes and streams have been restocked with fish and stricter fish and game laws passed, designed to prevent the extermination of the supply. In 1920 the Bureau of Fisheries dis-

tributed 4,770,355,720 eggs, fry, fingerlings, yearlings, and adults in the waters of the country.

436. Our industrial resources. — This brief inventory of our resources shows that the inhabitants of the United States are greatly favored by the possession of rich natural resources and favorable conditions. How have we as a people used the splendid heritage which we took over from the aborigines practically undisturbed since the beginning of time? This question has been raised from various quarters. For practically the first time in our history we have paused in our production of wealth officially to take stock of our resources and to query the justification of their present utilization and distribution. Under the lead of the Federal government a dozen commissions have been probing into these problems.

437. Wastes of modern economic life. — The American nation, bred to carelessness in the midst of plenty, has long been known as a wasteful people, but the disclosures of recent government investigations are positively appalling. So far from our natural resources being inexhaustible, it appears that at the present rate of consumption and under prevailing methods, many of them are rapidly nearing exhaustion. It is estimated that the supplies of available coal will be exhausted in one hundred and fifty years; that a century will see the end of our supplies of high-grade iron ore; and that the known copper deposits will last only fifty to one hundred years. In the use of all of these, as at present conducted, there is great waste. The waste in the mining of bituminous coal is 50 per cent., and double that in the case of anthracite; this could be reduced 25 per cent. by improved methods. Almost as great is the waste involved in the existing manner of their utilization, through poorly constructed coke ovens, stoves, etc. Iron is carelessly wasted in the form of scrap, instead of being saved for further use. The National Conservation Commission estimated that the waste or losses in the mining, preparation, and use of the mineral products of this country exceed $1,400,000 per day.

But not only in the case of the minerals and metals has this process of exploitation been going on. For three hundred years our farmers have been mining the soil and have exhausted its fertility as truly as though they had extracted the elements from a bed of ore. A government report concludes that the fertility of the soil for 50 per cent. of the country has been lessened. There are two ways in which this is effected; by erosion, or the carrying away of the soil itself; and by so using the soil that valuable elements are exhausted and not replaced. Indeed it is doubtful whether agriculture, as practised in the United States, has hitherto been a self-sustaining industry; that is, whether it would have paid if the elements taken out of the soil by crops had been replaced.

The consumption of the forest is due to two causes — use and waste. The annual consumption of timber in all forms may be put at 100 billion feet, while the annual growth is perhaps 30 or 40 billion feet. Upon these estimates a timber famine in about thirty years is indicated. But not merely does the consumption of timber exceed the present growth, there is also great waste in its utilization; only three eighths of the standing tree is estimated to go into the finished article. Forest fires destroy $50,000,000 worth of timber yearly, while the total destruction of wealth of all kinds from fire is placed at $450,000,000 a year, of which $400,000,000 is preventable.

Intimately connected with the foregoing are the wastes occasioned by the misuse or lack of use of our water supplies. The cutting down of our forests has increased floods, which every year sweep off into our rivers $500,000,000 worth of rich top soil. As a result of this our rivers are choked by silt and made less navigable. At the same time the water power thus generated remains unused. It is estimated that if the flood waters were stored it would be possible to develop 100,000,000 horse power, which would furnish sufficient power to meet the needs of the United States when the population is 250,000,000 people. The release of this power would

conserve enormous supplies of coal for such domestic and industrial purposes as only coal can supply.

Finally there is a loss and waste of human life which is more serious than all that have been mentioned. Reports show that one miner is killed and several injured for every one hundred thousand tons of coal mined. In the operation of our railways in 1920 1 trainman in every 8 was injured and 1 in every 296 was killed. Similar toll of human life is taken in our manufacturing industries, either through accident or industrial disease, both of which are largely preventable. It is stated that as a minimum estimate the length of life in this country could be prolonged fifteen years on the average. This would mean not only a diminution of suffering and sorrow, but an enormous addition to the labor force of the country. Dr. G. M. Gould concludes that sickness and death in the United States cost $3,000,000,000 annually, of which he regards at least one third as preventable.

438. Conservation. — We are thus brought face to face with the problem of the better utilization or conservation of our national resources. By this is not meant the locking up of these resources and withholding them from present use, but only their wise and careful use. The problem of conservation differs with each group of resources. In the case of metals and minerals, which are non-replacable by nature, care is especially necessary. Here conservation means prevention of wastes and more careful use, thereby prolonging the life of existing supplies. Minor reforms would be the substitution of common mineral substances for those being exhausted, where possible; the removal of the tariff on imports and the checking of exports; the painting of iron to prevent rust, etc.

In the case of the other natural resources, which are replaceable, the problem of conservation is that of renewal as they are used. Erosion of the soil should be prevented, and the elements taken from the soil by growing crops should be restored by means of fertilizers, by scientific rotation, or by

other means. Similarly forests and fish may be utilized, but care should be taken to renew them. Fires must be stopped, the wastes of logging and milling reduced, reforestation undertaken on a scientific basis, and taxation so adjusted as not to compel the cutting of standing timber. Our lakes and streams must be constantly restocked to maintain the supply of fish. So, too, in the case of water, the problem is that of complete utilization. Floods must be reduced, the water used for irrigation where necessary, waterways improved for navigation, and the power locked up in our streams fully utilized for industrial purposes.

There is no reason why all of these resources should not last indefinitely if they are wisely used and conserved. Perhaps the strongest economic force leading to their more scientific utilization is the rise of prices that has taken place in connection with every one of these resources. The increase in population and consequently in demand, together with a diminution in supply, relative or absolute, has forced prices of most raw materials up to a point where it is profitable to be careful. This is our strongest guarantee of conservation, but legislation is also needed. In many cases private profit and public policy are antagonistic, as in the use of forests, water, etc. In all such cases public policy must rule, and the government should be empowered to take over the control of our forests or water power or coal mines or any resource to the extent necessary to prevent exhaustion or monopolization.

In the case of national vitality and human life dependence must be placed more largely upon education and legislation. Sickness and disease must be prevented; that this can be done to an extent hitherto undreamed of is shown by the success that has attended the stamping out of yellow fever, bubonic plague, and similar epidemics, the cure of the hookworm disease, and the reduction in mortality from tuberculosis. Federal, state, and municipal governments must compel sanitary conditions of living and work in the home and industrial establishments; water and milk supplies must be

guarded, medical inspection introduced in our schools, and above all the individual man and woman must be trained in right habits of living. The new science of eugenics is also insisting upon more attention being given to the problem of rearing a strong and capable race; sickness and disease will thus largely disappear and national efficiency be greatly increased.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXXII

The people of the United States have been wonderfully blessed by the possession of rich natural resources, and to this factor they owe in large measure their rapid economic progress. In the exploitation of this wealth they have, however, developed wasteful methods, and the problem of conservation is the education of the people to more careful methods of utilization.

1. Would it be economically wiser to encourage the importation of lumber from Canada and oil from Mexico, or by protection to encourage the use of our own supplies?

2. At the time of the Revolution the iron deposits in New Jersey were being mined; why are these no longer utilized?

3. If the Pacific coast were well provided with harbors and navigable rivers, is it likely that it would become commercially and industrially as important as the Atlantic seaboard?

4. As man progresses, does he become more or less dependent upon his physical environment?

5. Has the existence of rich natural resources made the United States a better place to live in?

6. What is conservation and why have we recently heard so much about it? [G. Pinchot, Fight for Conservation, 40–52; M. H. Gregory, Checking the Waste, 1–19; H. Plunkett, Rural Life Problem, 17–34.]

7. To what extent have the waste and exhaustion of our metal and fuel resources been carried? How may they be conserved? [Rep. Nat. Conservation Commission, I, 95–114; III, 426–445, 483–520; Conference of Governors, 14–62; C. R. Van Hise, Conservation of Natural Resources, 16–45, 62–101; Gregory, Checking the Waste, 124–143, 164–180.]

8. Describe the wastes of lumbering and measures taken to conserve our forest resources. [Rep. Nat. Cons. Com., I, 51–74; II, 179–758; Proceedings First Nat. Conservation Congress, 212–216; Conference of Governors, 83–95; Van Hise, 208–258; Gregory, 42–85.]

9. In what ways is there a waste of human life? How may it be prevented? [Van Hise, 364–374; Gregory, 265–301; Pinchot, 101–108; Proc. First Conserv. Cong., 90–95; Rep. Nat. Cons. Com., III, 620–751.]

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CHAPTER XXXIII

CONCLUSIONS

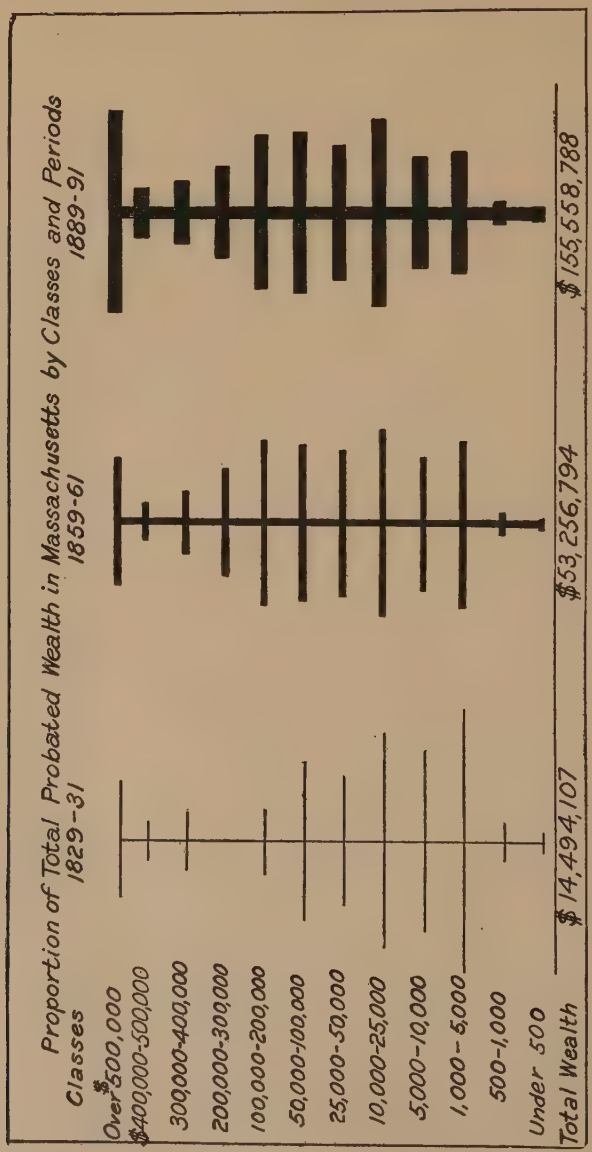
439. The concentration of wealth. — The record of the economic development of the American people has been one of steady growth in national strength and material wealth. Before concluding this survey, however, it will be desirable to ascertain if possible to whom this vast increase of wealth is going. The situation at the beginning of the twentieth century may be stated somewhat as follows: We have large natural resources of every sort needed in modern production; a working population of some 25,000,000 persons, many highly trained; a supply of active capital of not less than $50,000,000,000; a highly efficient organization of industry, transportation, and finance, which permits the most economical production and exchange of commodities; and finally, political and social conditions which are distinctly favorable to the production and acquisition of wealth. It is certainly pertinent to inquire, not merely what this combination of resources, labor, capital, and skill is effecting in the way of production, but also how the vast output is being distributed. Equality of conditions and the wide diffusion of wealth have long been the boast of our Republic; are they less true to-day than they were fifty or one hundred years ago? In the half century, 1850–1910, the per capita value of all property in the country has more than quadrupled; how has this been distributed? While no absolutely exact statistics exist on this subject, yet reliable estimates by scientific students all tell the same story — of concentration of wealth in the hands of the richest groups. The character of the changes which have taken place in the last seventy-five years of the nineteenth century is perhaps best shown in a study of probated

estates in Massachusetts, made by the State Bureau of Statistics of Labor.

This gave the amount of wealth that was probated at different periods, classified according to the size of the estates that were left. If we represent the percentages of the total wealth probated at each period by graphs, in which the length of the lines represents the percentage in each class, and the thickness of the lines represents the relation of the totals from one period to another, we shall obtain a clearer idea of the changes that have taken place than we could get from a mere table of figures. It will be seen that in the period 1829–31 the branches of the tree-like figure are broadest near the base, while the reverse is true for the period 1889–91. That is, a larger proportion of the probated wealth was in small estates of not over $5000 in 1830 than in 1890, while in the latter period the largest single group was that of estates of $500,000 and over. This would seem to indicate an increasing concentration of wealth in the hands of the richest men. But another significant feature of the graphs is the fact that the top branches tend to grow longer at the expense of the lower branches, showing a tendency for all the estates to become larger as time goes on. In 1829 the amount of the average estate was $4,000; sixty years later it was over $10,000. The increasing wealth of the community is also shown by the thickening of the lines.

These figures seem to show not merely that a large proportion of the total wealth is in the hands of the rich, but that this proportion has greatly increased. In 1893 Mr. George K. Holmes estimated from a study of the statistics of farm and home ownership in the United States in 1890 that "91 per cent. of the families of the country own no more than about 29 per cent. of the wealth, and 9 per cent. of the families own about 71 per cent. of the wealth." A later and more careful study has reached more conservative conclusions.[1] Income

[1] *Income in the United States: Its Amount and Distribution*, 1909–1919. By W. C. Mitchell, W. I. King, F. R. Macauley, O. W. Knauth (New York, 1921).


Proportion of Total Probated Wealth in Massachusetts by Classes and Periods
1829-31
1859-61
1889-91
Classes
Over $500,000
$400,000-500,000
300,000-400,000
200,000-300,000
100,000-200,000
50,000-100,000
25,000-50,000
10,000-25,000
5,000-10,000
1,000-5,000
500-1,000
Under 500
Total Wealth
$14,494,107
$53,256,794
$155,558,788

rather than wealth was made the subject of this investigation, and the conclusion was reached that 86 per cent. of the gainfully employed in 1918 received about 60 per cent. of the national income, while 14 per cent of those employed received the remaining 40 per cent. of the income. The total national income for this year was estimated at $61,000,000,000, which would yield a per capita income of $586. Both of these figures are unduly high as they are figured in terms of an inflated currency, but even when reduced to a pre-war level both figures are higher than those of any other country.

440. Economic loss through inequitable distribution. — It is evident that we have moved a long distance from the democratic conditions of comparative economic equality that existed seventy-five or one hundred years ago. "Swollen fortunes" are a phenomenon of the twentieth century. But, it may be asked, wherein lies the evil of inequality, since society as a whole has undoubtedly gained in wealth? Indeed, some writers argue that this very inequality is a necessary stimulus to economic production. Without attempting to argue the point, certain economic losses that result from grossly inequitable distribution of wealth may be pointed out. The great fortunes of the United States have been made possible by the unrivaled opportunities for the exploitation of natural resources, the appropriation of natural monopolies, and the development of new lines of trade and manufactures. Many of the natural resources have been monopolized by a few, who have become wealthy with the growth of population and the consequent increase in demand. Situated at strategic points in the industrial world, they have exacted tribute of society, much as the robber barons of old. And in this they have been greatly helped by receiving discriminating favors from railroads and other natural monopolies, through which their position has been greatly strengthened against possible competitors. Under such circumstances the growth of their wealth has not measured either the efficient utilization of the resources of the continent, or the greatest social gain

from their use. Increased production has not infrequently been attended by increased inequality in distribution. On the other hand, it must be emphasized that the wonderful opportunities, which the United States has in general opened to ability and talent, have spurred the virile and capable to the fullest development of their native powers. These persons have in most instances earned their large rewards and have conferred upon society even greater benefits.

Inequitable distribution generally means poor economy and low efficiency in the work of production. While on the one hand there has developed in this country a splendid type of business organizer, called forth by the very conditions of industry, on the other are to be noted the wastes of overwork, child labor, sweating, industrial disease, preventable accidents, slums, etc. A better organization of industry and distribution of wealth would prevent many of these and would raise the general standard of efficiency. Gross inequality also means lessened pleasure in the consumption of wealth. What is needed is not merely more wealth, but wealth so distributed that the economic gratifications of society would be maximized. The sum total of economic satisfactions will be greater in a society in which there is fair equality of distribution than in one where the millionaire is jostled by the tramp. There is finally an inconsistency, not to say a danger, in a society which is politically democratic, but economically plutocratic.

441. Needed reforms. — It is easier to criticise than to suggest remedies, but certain conclusions seem irresistible. So far as the problem can be solved by means of legislation, this should be used to prevent monopoly. Not only this, but society should also assert its right to all unearned values by ownership, by special taxation, or other methods. Special privilege must be prohibited and so far as possible the door of opportunity kept open for all alike. Limited natural resources must be saved to society, and this should be done by the means that seem most feasible under the particular circumstances, whether this be government ownership, regulation,

fixation of rates, or assistance. More important than legislation, however, in the ultimate solution of this as of most problems, is education. By means of better education increased individual efficiency must be secured and economy in national production augmented. Increased production is necessary as a condition to better distribution. Education in consumption, in the art of spending, is hardly less necessary, both to prevent waste and to achieve greater economic satisfactions from existing wealth. This may be secured by greater wisdom in the expenditure of his income by each individual, by the greater socialization of wealth, as in the form of libraries, art galleries, parks, etc., and by the shortening of the working day, whereby leisure, one of the greatest boons of civilization, will be more generally distributed. We may trust to education to teach the best use of this leisure.

Among all the reforms suggested the one which would probably yield the largest immediate improvement in economic conditions is the more rational expenditure of income. If the positively harmful and also the relatively frivolous expenditures were eliminated from our budgets, there could be produced and consumed more things which would contribute to economic efficiency and would raise the standard of living. A current estimate places the expenditures in the United States in 1921 for luxuries at $22,700,000,000. To be sure the word "luxuries" is made to include a good many articles of consumption, such as cake and candy, ice cream, face powder, furs, and similar things, which contain some real utility and would have to be replaced by other consumable articles, if discarded. But even allowing for exaggeration it undoubtedly remains true that great economies could be effected by wiser expenditures.

442. Summary: The colonial period. — The new world seems to have been reserved in all its wonderful richness of undeveloped resources for settlement by the Anglo-Saxon race. The aborigines who were found in the country at the first coming of the white man had not advanced far enough in

civilization to exploit the mineral or agricultural wealth, but subsisted largely by the chase or by a primitive agriculture which barely scratched the surface of the soil. Although other nations were first on the scene they finally yielded the title of the continent of North America to the English. The motives which sent the early colonists to these shores were effective in selecting the most venturesome, energetic, and liberty-loving for the work of settlement. During the colonial period the work of the colonists was a constant struggle with nature, the hewing of homes out of the forest, and the development of the wilderness. The industries of the colonists were determined largely by their environment and were scarcely a matter of choice; agriculture was of necessity the most important single industry, supplemented in New England and the middle colonies by fishing and commerce. While manufactures were early attempted, they were never developed far. Partly responsible for this was the restrictive commercial policy of England towards the colonies, which made their interests subordinate to those of the mother country.

Although the work of the colonists involved unremitting toil and hard conditions, they were never carried away by materialism. From the beginning the American people have had ideals and have sought earnestly to realize them. They have not been swept on blindly by the forces of nature, but have deliberately sought to realize certain political, social, and economic ideals. In the simple conditions of an undeveloped agricultural community their realization seemed comparatively easy. While the accumulation of wealth was as yet slight, it was distributed fairly equally, and poverty was almost unknown. There was abundant opportunity for all who would exert themselves, and to labor itself there attached no social stigma. Widespread economic well-being characterized the end of the period.

443. Summary: The struggle for freedom. — The colonial period was brought to a close by the revolt of the colonies against the restrictive and irritating economic policy of Eng-

land. Political independence, however, was not followed immediately by either commercial or economic independence. Another war was necessary before the first was secured, while the second can hardly be said to have been attained until the second quarter of the nineteenth century. The economic development of the country after the Revolution followed in the main the same course which had characterized it before. During this period the carrying-trade was developed to an extraordinary degree, while the foreign demand for our agricultural staples also gave a great stimulus to agriculture. A beginning was made in manufactures, but these industries were confined as yet to the household. As during the colonial period, so also during the thirty years following the Declaration of Independence, the economic policy of the new States and later of the Union was largely dependent upon that of England and of Europe. The face of the American people was turned to the Atlantic and their gaze was directed across it. From this colonial attitude they were first rudely shaken by the embargo and later by the War of 1812, which mark an important industrial transition in the economic life of the nation.

444. Summary: The westward movement. — The restrictive period inaugurated by the embargo, during which foreign intercourse was almost completely cut off, introduced an industrial revolution which gradually transferred the textile and other manufacturing industries from the household to the factory. By the time of the Civil War the transition had been almost completely accomplished. More significant, however, and more important in the life of the growing nation, was the westward movement of the population. The great task of the American people, of appropriating and settling the vast territory to the west of the Alleghanies, was now undertaken on a large scale. Hand in hand with the westward movement, as a part of it, went the exploitation of the undeveloped resources of the country, the expansion and improvement of agriculture, and above all, the development of improved means of transportation and communication.

This period marks the emergence of a strong national feeling. For the first time the American people turned their back on the Atlantic and developed a commercial policy which looked to economic as well as political independence of Europe. The Monroe Doctrine was simply the political statement of the economic situation and policy, though the territorial phase was primarily emphasized in the debates on this subject. The problems of this period were internal and domestic: the disposition of the public lands, the encouragement of internal improvements, the protection of manufactures, the building up of the merchant marine, and above all, the question of slavery. The material prosperity of the country and the growing economic integration of the different sections were threatened by the existence of this institution. The dictum of Lincoln, that "this country cannot endure half slave and half free," was as true economically as it was politically. The unwillingness of the people to permit the further extension of slavery led finally to the Civil War and to the abolition of the institution.

As a whole the period was one of marvelous material expansion and prosperity. The prodigality of nature, the bigness of the country, and the character of their work led to the exhibition of some of the less desirable traits of the American people. But, while their manners were often rude, the heart and conscience of the nation were right. Economic well-being was widespread and poverty was rare outside of the larger cities, but already complaints were heard of labor troubles, of the increasing power of monopolies and corporations, and of the growing concentration of wealth.

445. Summary: The rise of industrialism. — The end of the Civil War found the different sections of the country in different stages of economic development and confronted with varying problems. The South was left with a peculiar problem of its own. A new generation of free laborers had to be trained up to take the place of the former slaves, as these died off. That, and the exploitation of the untouched natural

wealth of this section, is the task of the South, upon whose solution she is now entering with the vigor of a young people. In the West the free land had been practically all taken up, and the future will probably see there the application of a more intensive agriculture and the slow, steady, non-dramatic extension of other interests — the growth of the population, of cities, and of manufacturing industries.

The industrial development of the central and eastern States is already far advanced, and with this growing industrialism have emerged numerous problems. The transference of manufactures from the household to the factory has been completely effected, and the factory has grown in size and complexity. Large-scale production characterizes the manufactures, transportation, and distribution of most of the products of the country. With the expansion of industry beyond the limits of a local market, its organization on a larger scale became imperative. The formation of corporations and trusts has been one answer to this demand; the trust is a temporary form, but the organization of capital in larger masses is a permanent result of this movement. Association and coöperation are types of an advanced stage of economic development, and it is highly desirable that the benefits of these should be secured, while avoiding the evils of monopoly. Hand in hand with the organization of capital has gone that of labor. The organization of industry on a large scale, with expensive machinery has resulted in the growth of a wage-earning class; these workers have organized on a national scale and enforced their demands with fairly steady success. The changed character of immigration has complicated the labor situation and has brought the question of its further restriction to the front.

Having settled the most pressing domestic problems resulting from the Civil War, the country has now directed its attention to the invasion of European markets. The industrial development of the country has been such as to permit not merely the satisfaction of domestic needs, but also the expor-

tation of surplus manufactured goods. Again the American people may be said to have faced the Atlantic and directed their gaze towards Europe; the near future will undoubtedly see a change in their commercial policy corresponding to this altered economic attitude.

446. Summary: Economic integration. — The abolition of slavery permitted harmonious economic coöperation between the different sections of the country; and the last quarter century has seen rapid progress toward the complete industrial integration of the whole country. As interests have become larger, sectional divergencies have been lost in the growing unity of the greater whole. With the growth of the transportation system and the expansion of the population, industries have outgrown the narrow limits of local communities and even States or sections, and have become national in scope and importance. The problems have therefore been shifted largely from the local to the national arena, and the agencies of control have necessarily become those of the Federal government, a movement which has been hastened by the expansion of Federal powers during the World War. Never before was the question of governmental regulation of private industries more important. True economic freedom, the equal opportunity of all in the race for wealth, can be obtained only by the enforcement of law and conservative control. While an unrestrained policy of *laissez faire* has permitted the growth of some undesirable features in the political, social, and economic organism, there are many and hopeful indications at present not merely of the recognition of the need of public regulation, but of its actual application. There is also a growing sense of responsibility on the part of the average citizen and man of wealth. The great problem of the present in the United States is no longer that of appropriating the natural resources, but of the wise use and administration of the great wealth of the country by those in whose ownership it rests.

There has been an enormous increase of wealth during this period, but there has been also a disproportionate concentra-

tion of wealth in the hands of a few. Old world problems of poverty — from which we had hoped we were happily free — have emerged in our cities, where destitution and vice have been localized and brought before the public gaze. On the whole, however, the present probably sees as wide and general a diffusion of plenty as any previous time in our national history. The future holds great promise and also grave responsibility for the wise and conservative solution of these far-reaching economic problems.

SUGGESTIVE TOPICS AND QUESTIONS. CHAPTER XXXIII

1. Is the concentration of wealth a desirable thing? [C. B. Spahr, Distribution of Wealth in the U. S.; G. K. Holmes, Concentration of Wealth, in Pol. Sci. Quart., 1893; W. E. Weyl, The New Democracy, 139–155.]

2. Enumerate the economic causes of large fortunes. [G. P. Watkins, Growth of Large Fortunes; A. Youngman, Economic Causes of Great Fortunes.]

3. Are the rich growing richer, and the poor, poorer? [C. D. Wright, Pract. Soc., 343–9; *Ibid.* in Atl. Mo., LXXX, 300; The Concentration of Wealth (symposium), in Independent, May 1, 1902; A. J. Ferris, Pauperizing the Rich.]

4. In a speech in April, 1906, President Roosevelt said: "As a matter of personal conviction, and without pretending to discuss the details or formulate the system, I feel that we shall ultimately have to consider the adoption of some such scheme as that of a progressive tax on all fortunes, beyond a certain amount, either given in life or devised or bequeathed upon death to any individual — a tax so framed as to put it out of the power of the owner of one of these enormous fortunes to hand on more than a certain amount to any one individual." Discuss this.

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**Mitchell, W. C., and Others: Income in the United States: Its Amount and Distribution.
*Spahr, C. B.: An Essay on the Present Distribution of Wealth in the United States.
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Weyl, W. E.: The New Democracy.
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BIBLIOGRAPHICAL NOTE

A FEW of the more readily accessible books have been listed at the end of each chapter. At this point it may be helpful to suggest a few general works which would serve, at slight expense, as the basis of a high-school or college reference library for the study of this subject. These are:

J. C. Ballagh, Economic History of the South.
W. D. P. Bliss, New Encyclopedia of Social Reform.
E. L. Bogart and C. M. Thompson, Readings in the Economic History of the United States.
P. A. Bruce, Economic History of Virginia (2 Vols.).
G. S. Callender, Selections from the Economic History of the United States.
K. Coman, Industrial History of the United States.
K. Coman, Economic Beginnings of the Far West (2 Vols.).
C. M. Depew, One Hundred Years of American Commerce (2 Vols.).
P. Leroy-Beaulieu, The United States in the Twentieth Century.
I. Lippincott, Economic Development of the United States.
N. S. Shaler, The United States (2 Vols.).
T. W. Van Metre, Economic History of the United States.
W. B. Weeden, Economic and Social History of New England (2 Vols.).
C. D. Wright, The Industrial Evolution of the United States.

In addition to these more systematic treatises, a great deal of valuable current information may be obtained from the publications of the various departments of the Federal Government at Washington. Among these may be mentioned the annual Statistical Abstract of the United States, the yearbooks and bulletins of the Department of Agriculture, the reports of the bureau of foreign and domestic commerce and of the census bureau of the Department of Commerce, the publications of the bureau of labor statistics, the annual reports of the Geological Survey, of the Interstate Commerce Com-

mission, of the Treasury Department, and of other bodies. Important reports of national commissions on various problems are frequently published. All of these Government documents can be purchased at a nominal charge from the Superintendent of Documents, or may sometimes be obtained free from the congressmen of the district. Interesting illustrations of particular phases of our economic development may sometimes be obtained from historical novels. A fairly complete list of American hstorical novels with an economic bearing has been compiled by the writer and published in the *History Teachers' Magazine,* Vol. VIII, pp. 226–231 (September, 1917).

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